Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Simplify: $\dfrac{\sqrt{5^2 + 6^2 + 7^2}}{5 + 6 + 7}$

1) _____

    A) 0.24   B) 1   C) 10.49   D) 6.11   E) 0.58

Answer: E

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

2) Emily's residence is assessed by the local taxation department at $249 500.00. Calculate the property taxes paid on this property if the existing mill rate is 15.

2) _____

Answer: $249500 \times \dfrac{15}{1000} = \$3742.50$

3) Suppose you went shopping and bought bulk laundry detergent worth $11.65. You then received a $1.50 trade discount, and had to pay a $2.10 shipping charge. Find the total purchase price of the detergent in Nova Scotia.

3) _____

Answer:

Purchase price	$11.65
Less discount	1.50
Net price	10.15
Add shipping charge	2.10
Total cost before taxes	12.25
HST 15% of $12.25 1.8375	1.84
Total cost in Nova Scotia	$14.09

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

4) You are paid a commission on the gross profit per vehicle that you sell. The commission increases with each additional vehicle that you sell. The minimum commission is 25% and it increases in increments of 1% for each additional vehicle sold. Your sales for the following month were as follows:

4) _____

Vehicle	Gross Profit
1	$755
2	$1023
3	$474
4	$1512
5	$864
6	$1021
7	$1953
8	$1207

What is your monthly gross pay?

    A) $2554.60   B) $2462.69   C) $2669.69   D) $2569.42   E) $2642.69

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

5) The city of Toronto had a property tax rate of approximately 1.529% on multiresidential buildings in 2015. If a multiresidential building had an estimated value of $ 12 500 000, how much property tax did the building's owners have to pay?

5) _____

Answer: 0.01259(12500000) = 157375

6) Evaluate: $\dfrac{2424}{1 + .2 * 166/365}$

6) _____

Answer: 2424/(1 + .2 * .4547945) = 2424/(1 + .0909589) = 2424/1.0909589 = 2221.899

7) Isabelle works for The Brick, a furniture company. She earns a base salary $12/hr, 40 hours a week. However, she is also paid commission of 2% for all sales and $1000 incentive pay for every sale of $10 000. In the month August, she won the title of employee of the month for total sales of $75 000. How much did she earn in the month of August, assuming a 4 weeks month?

7) _____

Answer: Base salary = 12 × 40 × 4 = $1920
Commission earned in August = 2% × 75000 = $1500
Total incentive pay = 7 × $1000 = $7000
Total pay for August = $1920 + $1500 + $7000 = $10 420

8) Convert this fraction into the decimal form. If appropriate, place a dot above a decimal number to show that it repeats: $\dfrac{6}{20}$

8) _____

Answer: 0.333

9) While in Prince Edward Island, Charlotte goes to the barbershop, where she pays $24 for the haircut and $21 for the colour, both of which are subject to the 14% HST. She also tips the barber 17% of the combined cost of the haircut and colouring, excluding taxes. How much does Charlotte spend in total?

9) _____

Answer: 24 + 21 = 45 Tip = 17% of 45 = 0.17(45) = $7.65 HST on the haircut = 14% of 24 = 0.14(24) = $3.36 HST on the colouring = 14% of 21 = 0.14(21) = $2.94 Total = 45 + 7.65 + 3.36 + 2.94 = $58.95

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

10) Phil works for a hydro company in a 35 hour work week schedule. His contract pays him $1345/week for working Monday to Friday, 7 hours a day. If he spends more time than his usual time, he is entitled to "time and a half" on time worked in excess of 7 hours per day. If he works on Sundays or statutory holidays, he is entitled to twice the time. Calculate his gross earnings for the month of November 2013, if he worked straight time only.

10) _____

   A) $4035   B) $5649   C) $8473.50   D) $11 298   E) $5380

Answer: B

11) You bought a new car in Ontario for $19 500 which included HST. What is the total amount of HST that you paid?

11) _____

   A) $2535.00   B) $171.05   C) $2243.36   D) $1197.37   E) $2913.79

Answer: C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

12) Danny receives a commission of 13.4% on the first $5000 of his net sales, 14.1% on the next   12) _____
$3000, and 15.0% on any additional net sales for the month, and is entitled to drawings of
up to $1750 per month. During February, Danny's gross sales amounted to $11 456 and
sales returns and allowances of $512.
a)   What is Danny's gross commission for the month?
b)   If Danny drew $1235 in February, what is the amount due to him?

Answer: a)   Gross sales   = $11 456.00
             Commission on first $5000   = 0.134(5000)   = $670.00
             Commission on next $3000   = 0.141(3000)   = $423
             Commission on additional sales   = 0.15(11456 - 8000)   = $518.40
             Total gross commission   = $1611.40
       b)   1611.40 - 1235 = $376.40

13) Yanping receives a monthly salary of $1931.54 paid semi-monthly. The regular workweek   13) _____
is 38 hours.
a)   Calculate the hourly rate of pay.
b)   If the gross earnings for one pay period is 1270.75, for how many hours of overtime
was Yanping paid at double-time regular pay.

Answer: a)   Annual gross earnings = 1931.54 × 12 = 23 178.48

$$\text{Weekly gross earnings} = \frac{23178.48}{52} = 445.74$$

$$\text{Hourly rate of pay} = \frac{445.74}{38} = \$11.73$$

       b) $\text{Regular semi-monthly gross earnings} = \dfrac{1931.54}{2} = 965.77$

             Overtime pay = 1270.75 - 965.77 = 304.98
             Overtime rate = 11.73 × 2 = 23.46

$$\text{Overtime hours} = \frac{304.98}{23.46} = 13 \text{ hours}$$

14) Shaggy's Grocery Store shows sales revenue (exclusive of GST) of $235 000 for the year.   14) _____
Shaggy's GST taxable expenses were (exclusive of GST) $24 750. How much should he
remit to the government at the end of the year?

Answer: GST collected   = 5% of $235000 = 0.05(235000)   =   11750.00
           GST paid   = 5% of $24750 = 0.05(24750)   =   - 1237.50
           GST remittance   = $10512.50

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

15) Calculate the weighted-average cost of the following inventory purchases: 15) _____

Date	Quantity Purchased	Cost per Unit	Total Amount
June 4	30	$11.50	$345.00
June 14	40	$15.00	$600.00
June 29	30	$10.99	$329.70

   A) $22.74   B) $22.75   C) $37.49   D) $12.75   E) $12.74
Answer: D

3

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

16) C.O. is paid a semi-monthly salary of 2 754.30. If his regular work week is 42 hours, what   16) _____
is his hourly rate of pay?

Answer: Annual salary = 2754.30 × 24 = 66103.20

$$\text{Weekly pay} = \frac{66103.20}{52} = 1271.22$$

$$\text{Hourly rate} = \frac{1271.22}{42} = \$30.27$$

17) A house in Detroit was sold at \$246,000, which is $\frac{4}{13}$ of its actual value. If the realtor made   17) _____

a commission of \$1.25 on each \$250 of the actual house value, how much commission does
the realtor earn while selling the house?

Answer: $\frac{1}{13}$ of the house's actual cost is $\frac{4}{13}$ of the cost ÷ 4.

\$246 000 ÷ 4 = \$61 500.

$\frac{13}{13}$ of the cost or all the actual value of the house, is $\frac{1}{13}$ of the cost × 13.

\$61 500 × 13 = \$799 500

$\frac{13}{13}$ of the house's price is \$799 500.

\$799 500 ÷ \$250 = \$3198.
\$3198 × \$1.25 = \$3997.50
The realtor earned \$3997.50.

18) Two people living in different communities build houses of the same design on lots of   18) _____
equal size. If the person in Airdrie has his house and lot assessed at \$165 000 with a mill
rate of 22.051 mills, will his taxes be more or less than the person in Kimberly with an
assessment of \$145 000 and a mill rate of 25.124 mills?

Answer: $\text{Property tax in Airdrie} = 165000 \left[\frac{22.051}{1000} \right] = 3638.42$

$\text{Property tax in Kimberly} = 145000 \left[\frac{25.124}{1000} \right] = 3642.98$

The person in Kimberly pays \$4.56 more in property tax.

19) In 2018, Ashley's bike repair shop made a gross profit of \$23 000, of which \$4032 were   19) _____
GST-taxable expenses. How much did Ashley remit to the government in 2018?

Answer: GST collected: 5% of \$23000 = 0.05(23000) =   \$1150.00
GST Paid: 5% of 4032   = 0.05(4032)   =   - \$201.60
GST Remittance: =   \$948.40

20) A.J. is paid an annual salary of $41 840.00. She is paid monthly on a 40-hour work week. What is the gross pay for a pay period in which she works 9 hours overtime at time-and-a-half regular pay?

20) _____

Answer: Weekly pay = $\dfrac{41840.00}{52}$ = 804.6154

Hourly pay = $\dfrac{804.62}{40}$ = $20.1154

Regular monthly earnings = $\dfrac{41840}{12}$ = 3486.67

Overtime earnings = 20.1154 × 9 ∗ 1.5 = 271.56
Gross = Regular time + Overtime = 3486.66 + 271.56 = $3758.22

21) Carla is paid a semi-monthly salary of $1870.80. Her regular workweek is 40 hours. Overtime is paid at time and one-half regular pay.
 a) What is Carla's hourly rate of pay?
 b) What is Carla's gross pay if she worked 7 1/2 hours overtime in one pay period?

21) _____

Answer: a) Annual salary = 24 × 1870.80 = 44899.20
Weekly salary = 44899.20 ÷ 52 = 863.45

Hourly rate of pay = $\dfrac{863.45}{40}$ = $21.58625

 b) Regular semimonthly pay   =   1870.80
Overtime pay = 7.5 × 21.58625 × 1.5 =   242.85
       Gross earnings $2113.65

22) A clothing salesperson receives a weekly base salary of $200.00 on a quota of $3 000. On the next $1000, he receives a commission of 25%. On any additional sales, the commission rate is 40%. Find her gross earnings for a week in which her sales total $6000.

22) _____

Answer: Base salary on first $3000   = $200.00
Commission on next $1000 = 0.25 × 1000   =   250.00
Commission on additional sales = (6000 -4000) × 0.40 = 2000 ×. 40 =   800.00
       Gross earnings   = $1250.00

23) Last week Dana worked 46 hours. For the regular workweek of 40 hours she is paid $12.40 per hour, and for every hour over 40 hours she is paid at time and one-half regular pay. How much did she earn last week?

23) _____

Answer: For the first 40 hours = 40(12.40) = 496.00
For the next 6 hours = 6(12.40 + 6.20) = 111.60
The total = 496.00 + 111.60 = $607.60

24) Ali checked his pay stub on his employee portal and it showed gross earnings of $596.00 for 51 hours of work. What is his hourly rate of pay if the regular workweek is 40 hours and overtime is paid at time and one-half the regular rate of pay?

24) _____

Answer: Total hours   = 51
Regular hours   = 40
Overtime hours   = 11
At time-and-a-half, overtime hours are equivalent to
11 × 1.5 = 16.5 regular hours
Rate of pay = 596/56.5 = $10.55

25) Reduce the following fraction to the lowest term: $\dfrac{64}{104}$

25) _____

Answer: $\dfrac{8}{13}$

26) A party room was rented out at \$11.75 per hour. If 6 people each rented the room for $2\dfrac{3}{5}$, 1

26) _____

$\dfrac{17}{20}$, $4\dfrac{5}{6}$, $3\dfrac{3}{4}$, $6\dfrac{1}{3}$, and $2\dfrac{7}{10}$ hours respectively, how much did the party room owners earn in

total (excluding all taxes)? Round your answer to the nearest cent.

Answer: $= \dfrac{11.75}{1} \times \dfrac{13}{5} + \dfrac{11.75}{1} \times \dfrac{37}{20} + \dfrac{11.75}{1} \times \dfrac{29}{6} + \dfrac{11.75}{1} \times \dfrac{15}{12} + \dfrac{11.75}{1} \times \dfrac{19}{3} + \dfrac{11.75}{1} \times \dfrac{27}{10}$

$= \dfrac{152.75}{5} \times \dfrac{434.75}{20} \times \dfrac{340.75}{6} \times \dfrac{176.25}{12} \times \dfrac{223.25}{3} \times \dfrac{317.25}{10}$

$= 30.55 + 21.7375 + 56.7916 + 14.6875 + 74.4166 + 31.725$

$= 229.91$

$=$ The party room owners were paid \$229.91 in total.

27) Oliver received a pay at the end of the month of \$4 303.00 in June 2016, working 6 hours a day, and a total of 20 days in the month. Included in the pay is a bonus of \$243. What is Oliver's hourly rate of pay? Round to the nearest cent.

27) _____

Answer: \$4 303.00 – \$243 = \$4 100.00

\$4 060 ÷ 20 = \$203

\$203 ÷ 6 = \$33.83

Oliver's hourly rate of pay is \$33.83

28) Levi earns \$19.60 an hour with time and one-half for hours worked over 8 a day. His hours for a week are 9.25, 8.5, 10.5, 13.5, and 6.25. Determine his gross earnings for a week.

28) _____

Answer: Total hours = 9.25 + 8.5 + 10.5 + 13.5 + 6.25 = 48

Regular hours = 8 + 8 + 8 + 8 + 6.25 = 38.25

Overtime hours = 1.25 + 0.5 + 2.5 + 5.5 = 9.75

Regular pay = 38.25 × 19.60   =   749.70

Overtime pay = 9.75 × 19.60 × 1.5   =   286.65

Gross pay   =   \$1036.35

29) Calculate the property tax on a property located in the City of Brampton and assessed at \$326 500 if the current tax rate is 1.05351%.

29) _____

Answer: Property tax = \$326 500 × 1.05351/100 = \$3439.71

30) Phil works for a hydro company in a 35 hour work week schedule. His contract pays him $1345/week for working Monday to Friday, 7 hours a day. If he spends more time than his usual time, he is entitled to "time and a half" on time worked in excess of 7 hours per day. If he works on Sundays or statutory holidays, he is entitled to twice the time. Calculate his gross earnings for the month of October 2013, if he worked for 5 hours on Thanksgiving Day in addition to his regular hours for the month.

30) _____

Answer: Rate per day $= \dfrac{1345}{3} = \$269/\text{day}$

Rate per hour $= \dfrac{1345}{35} = \$38.43/\text{hr}$

Total working days in October 2013 = 22 days
Pay for regular days = 269 × 22 = $5918
Pay for overtime = 5 × 2 × 38.43 = $384.29
Gross earnings for October 2013 = $5918 + $384.29 = $6302.29

31) Simplify: $2[4^2 - 3 \times 12 + 4(7 - 9 \times 50)] + (6 + 9^4)$

31) _____

Answer: $= 2[4^2 - 3 \times 12 + 4(7 - 9 \times 50)] + (6 + 9^4)$
$= 2[16 - 3 \times 12 + 4(7 - 9 \times 50)] + 6 + 9^4$
$= 2[16 - 36 + 4(-443)] + 6 + 9^4$
$= 2[16 - 36 - 1772] + 6 + 9^4$
$= 2[-1792] + 6 + 9^4$
$= -3584 + 6 + 9^4$
$= -3584 + 6 + 6561$
$= -3578 + 6561$
$= 2983$

32) Convert this fraction into the decimal form. If appropriate, place a dot above a decimal number to show that it repeats: $\dfrac{17}{12}$

32) _____

Answer: 1.41̇6

33) Simplify: $44[(9 \div 3) + 72 - 6 \times 2.5 - 19] - [42 - 3(77 \div (3.5 \times 2)) - 9]$

33) _____

Answer: $= 44[3 + 72 - 15 - 19] - [42 - 3(77 \div 7) - 9]$
$= 44[60 - 19] - [42 - 3(11) - 9]$
$= 44(41) - [42 - 33 - 9]$
$= 44(41) - [9 - 9]$
$= 1804 - 0$
$= 1804$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

34) Calculate the weighted-average cost of the following inventory purchases:

34) _____

Date	Quantity Purchased	Cost per Unit	Total Amount
May 4	33	$12.25	
May 11	41	$13.87	
May 29	37	$11.99	

A) $12.12   B) $22.22   C) $21.21   D) $12.76   E) $22.11

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

35) Tom is employed at an annual salary of $50 292.48. His regular workweek is 37.5 hours and he is paid semi-monthly.
    a) What is Tom's gross pay per period?
    b) What is his hourly rate of pay?
    c) What is his gross pay for a period in which he worked 12 1/2 hours overtime at time and one-half regular pay?

35) _____

Answer: a) Semimonthly pay = 50292.48 ÷ 24 = 2095.52
       b) Weekly pay = 50292.48 ÷ 52 = 967.16308
          Hourly rate = 967.16308 ÷ 37.5 = 25.791015
       c) Regular earnings   =   2095.52
          Overtime pay = 12.5 × 25.791015 × 1.5 =   483.58
             Gross earnings   = $2579.10

36) C.O. is paid a semi-monthly salary of $1 250.00. If his regular work week is 35 hours, what is his hourly rate of pay?

36) _____

Answer: Annual salary = 1250.00 × 24 = 30000.00

$$\text{Weekly pay} = \frac{30000}{52} = 576.92$$

$$\text{Hourly rate} = \frac{576.92}{35} = \$16.48$$

37) Express the following as a percent: 0.67

37) _____

Answer: 67%

38) An employee receives a gross pay of $750.73 for 47.25 hours of work. What is the hourly rate of pay if a regular work week is 37.5 hours and overtime is paid at time-and-a-half the regular rate of pay?

38) _____

Answer: Let the regular rate of pay be y.
       Regular weekly pay = 37.5y
       Overtime pay = (9.75 × 1.5)y = 14.625y
       Total pay = 37.5y + 14.625y = 750.7
                52.125y = 750.73
                    y = 14.40
       The regular rate of pay is $14.40

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

39) Simplify and round the answer to two decimal places: 56.929 - 36.434

39) _____

    A) 20.53   B) 20.54   C) 20.50   D) 20.49   E) 20.48
Answer: C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

40) Evaluate: $\dfrac{5000}{1 + .1 * 183/366}$

40) _____

Answer: 5000/(1 + .1 * .5) = 5000/(1 + 0.05) = 5000/1.05 = 4761.90

8

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

41) Express the following as a percentage: 41) _____

$\dfrac{15}{84}$

    A) .1667%　　　　　B) 16.67%　　　　　C) 166.67%　　　　　D) 1.667%　　　　　E) .001667%

Answer: B

42) $87\dfrac{1}{2}$% is equal to: 42) _____

    A) 8.75　　　　　B) $\dfrac{87.5}{100}$%　　　　　C) $87\dfrac{1}{200}$　　　　　D) $\dfrac{5}{8}$　　　　　E) $\dfrac{7}{8}$

Answer: E

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

43) Simplify: $\dfrac{20 - 15}{15 + 5}$ 43) _____

Answer: 5/20 = .25

44) Evaluate: $\dfrac{4 + 6(9-7)^2 + 2}{3 \times 5}$ 44) _____

Answer: $(4 + 6(2)^2 + 2)/15 = (4 + 6(4) + 2)/15 = (4 + 24 + 2)/15 = 30/15 = 2$

45) On a trip, a motorist purchased gasoline as follows: 66 litres at 69.0 cents per litre; 69 litres   45) _____
at 70.5 cents per litres; 80 litres at 71.5 cents per litre; and 57 litres at 74.5 cents per litre.
a) What was the average number of litres per purchase?
b) What was the average cost per litre?
c) If the motorist averaged 9.75 km per litre, what was her average cost of gasoline per
kilometre?

Answer: a)　66 + 69 + 80 + 57 = 272
　　　　　　　Average number of litres = 272 ÷ 4 = 68
　　　　　b)　Average cost per litre:
　　　　　　　Total cost = 66 × 69.0 =　　45.54
　　　　　　　69 × 70.5 =　　　　　　　48.645
　　　　　　　80 × 71.5 =　　　　　　　57.20
　　　　　　　57 × 74.5 =　　　　　　　<u>42.465</u>
　　　　　　　　　　　　　　　　　　193.85 cents
　　　　　　　Average cost = 193.86 ÷ 272 = 71.27 cents
　　　　　c)　Average cost per km = 71.27 ÷ 9.75 = 7.3097436 cents

46) Simplify: 6 ÷ 2 + 15 × 2   46) _____
Answer: 3 + 30 = 33

47) On March 1, Sam invested $90 000 in a business. On June 1, he invested another $10 000. On July 1, he withdrew $17 000 to spend on the repair of his house. On September 1, he injected another $2000 into the business. What was his average investment per month in the business during the year? Assume all months have the same length or weighting.

47) _____

Answer: $0 are invested for 2 months
$90,000 are invested for 3 months
$90000 + $10000 = $100,000 are invested for 1 month
$100,000 - $17000 = $83000 are invested for 2 months
$83000 + $2000 = $85000 are invested for 4 months

$$\text{Average investment} = \frac{0 \times 2 + 9000 \times 3 + 100000 \times 1 + 83000 \times 2 + 85000 \times 4}{12}$$

$$= \frac{876000}{12} = \$73\ 000 \text{ per month}$$

48) A salesperson receives a weekly base salary of $800.00 on a quota of $2900. On the next $2100, she receives a commission of 14%. On any additional sales, the commission rate is 19%. Find her gross earnings for a week in which her sales total $8455.

48) _____

Answer: Base salary on first $2900   = $800.00
Commission on next $2100 = 0.14 × 2100   =   294.00
Commission on additional sales = (8455 – 5000) × 0.19 = 3455 × .19 =   656.45
    Gross earnings   = $1750.45

49) A town has an assessed residential property value of $350 000 000. The town council must meet the following expenditures:

49) _____

Education: $11 050 000
General Purposes: $2 100 000
Recreation: $270 000
Public works: $670 000
Police and fire protection: $857 500

a) Suppose 70% of the expenditures are charged against residential real estate. Calculate the total property taxes that must be raised.
b) What is the mill rate?
c) What is the property tax on a property assessed at $235 000?

Answer: a) Total expenditure = $(11050000 + 2100000 + 270000 + 670000 + 958500)
        = 14947500
        Total residential property tax = 0.70(14947500) = $10463250

b) Residential mill rate $= \dfrac{10463250}{350000000}(1000) = 29.895$

c) Property tax $= \$235000 \left[\dfrac{29895}{1000}\right] = \$7025.33$

50) Beth's annual salary is $42 120.00. Her regular work-week is 36 hours and she is paid semi-monthly.
    a)   Calculate her gross pay period
    b)   Calculate her hourly rate of pay
    c)   Calculate her gross pay for a period in which she works 12 hours of overtime at time and one-half regular pay.

50) _____

    Answer: a) $\dfrac{42120}{2 \times 12} = \$1755.00$

            b) $\dfrac{42120}{52 \times 36} = \$22.50$

            c) Overtime = $12 \times 22.50 \times 1.5 = \$405.00$
                Gross pay = $1755.00 + 405.00 = \$2160.00$

51) Paul is a homeowner in Whitby and his home value has been recently assessed by MPAC as $339 500. Paul's tax notice lists the following mill rates for various local services and capital developments. Calculate current year's total property tax.

51) _____

Town general municipal	4.19938
Region subtotal	7.18877
Education	2.21000

    Answer: Total property tax rate = 4.19938 + 7.18877 + 2.21 = 13.59815

            Total property tax = $\dfrac{13.59815}{1000} \times 339500 = \$4616.57$

52) Find the arithmetic average of the following data set: 2, 9, $\dfrac{7}{8}$, 34.02, 52, 1, $83\dfrac{3}{4}$, 0.5, 6, $\dfrac{108}{22}$.

52) _____

    Answer: = (2 + 9 + 0.875 + 34.02 + 52 + 1 + 83.75 + 0.5 + 6 + 4.909)/10 = 19.405

53) Tommy Hughes invested $10 000 in a business on January 1. He withdrew $1000 on March 1, reinvested $5000 on July 1, and withdrew $4000 on October 1. What is Tommy's average monthly investment balance for the year?

53) _____

    Answer: Weighted investment:
            January 1 - February 28: $10000 \times 2/12 = 1666.6700$
            March 1 - June 30: $9000 \times 4/12 = 3000.0000$
            August 1 - August 31: $14000 \times 3/12 = 3500.0000$
            September 1 - December 31: $10000 \times 3/12 = \underline{2500.0000}$
            Average investment balance = $10666.67

54) Express the following as a percent: $\dfrac{7}{8}$

54) _____

    Answer: 87.5%

55) Turn $78\dfrac{54}{132}$% into a common fraction in lowest terms.

55) _____

    Answer: 69/88

56) Simplify: $\dfrac{50 - 10}{12 + 8}$

56) _____

Answer: 40/20 = 2

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

57) Simplify: $\dfrac{-3 + \sqrt{3^2 - 4 \times 1 \times 2}}{2 \times 1}$

57) _____

    A) 1.5   B) -1.5   C) -1   D) 0   E) 1

Answer: C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

58) "Save the tax" is a popular advertising tactic. How much would you save on the purchase of a sweater with a list price of $52.00 in a Manitoba store during a "Save the PST" promotion?

58) _____

Answer: Savings on PST = 7% of $52.00 = 0.07(52.00) = $3.64

59) Simplify: (28 - 4)/3

59) _____

Answer: (28 - 4)/3 = 24/3 = 8

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

60) Kim invested $7500 in a business for 3 months. She withdrew $2500 at the start of the fourth month and kept the rest of the money in the savings account for the remaining 9 months in the year. What is Kim's average monthly investment balance for the year?

60) _____

    A) $1042   B) $5625   C) $833   D) $5000   E) $3750

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

61) Sean's residence is assessed by the local taxation department at $160 000. Calculate the property taxes paid on this property if the existing mill rate is 20.

61) _____

Answer: $160\,000 \times \dfrac{20}{1000} = \$3200.00$

62) Purchases of an inventory item during last month were as follows:

Number of items	Unit price
5	$5.00
10	$8.00
8	$6.00
15	$3.00

What was the weighted average price per item?

Answer:
Number of items		Unit price		Weighted value
5	×	$5.00	=	25.00
10	×	8.00	=	80.00
8	×	6.00	=	48.00
15	×	3.00	=	45.00
Total: 38				198.00

Average price was 198/38 = $5.21

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

63) Change the following expression into a decimal: 166.67%   63) _____
   A) 16667   B) 1.6667   C) 166.7   D) 166667   E) 0.16667
   Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

64) Barb's Home Income Tax business operates only during tax season. Last season Barb   64) _____
grossed $38 790 including GST. During that season she spent $9500 before GST on her
paper and supply purchases. How much does Barb owe Revenue Canada for GST?

Answer: Barb's revenue of $38 790 includes 5% GST.

GST taxable revenue $= \dfrac{38790}{1.05} = 36\ 942.86$

GST collected = 5% of 36 942.86 = 1 847.14
GST paid = 5% of 9 500 = 475.00
Barb owes Revenue Canada $1847.14 - $475 = $1372.14

65) Change 0.25% into a decimal.   65) _____
   Answer: 0.25/100 = 0.0025

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

66) Simplify: $\dfrac{\$636}{0.09 + \dfrac{301}{365}}$ 66) _____

   A) $765   B) $7067   C) $665   D) $771   E) $695
   Answer: E

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

67) A computer store located in Oakville, Ont., sells a laptop for $1000.00 plus HST. If the same model is sold at the same price in a store in Victoria, B.C.., what is the difference in the prices paid by consumers in the two stores?

67) _____

Answer: Amount paid in Oakville, Ont
    = Retail Price + 13% HST
    = 1000(1.13)
    = $1130
    Amount paid in Victoria, B.C.
    = Retail price + 12% HST
    = 1000 (1.12)
    = $1120
    The difference = 1130- 1120 = $10.00, that is the 1% difference in the HST

68) Mohammad is paid a weekly commission of 2% on net sales of $6000.00, 4% on the next $3 000.00 and 6.25% on all further sales. His gross sales for a week were 11 160.00 and sales returns and allowances were $120.00.
    a)   Calculate his gross earnings for the week.
    b)   Calculate the average hourly rate of pay for the week if he worked 40 hours.

68) _____

Answer: a)   Net sales = Gross sales - Returns = 11 160 - 120 = 11 040
    Commission: 2% of 6000 = 120.00
                   4% of 3000 = 120.00
                   6.25% of (11 040 - 9000) = 127.50
    Gross earnings = 120.00 + 120.00 + 127.50 = $367.50
    b)   Average hourly rate = 367.50 ÷ 40 = $9.19

69) An employee at a nuclear power plant in New York has an annual salary of $143 000 and is paid every two weeks. The employee works twenty days in a month, five days in a week, and eight hours in a day. (Assume 52 weeks in a year)
    a)   What is the gross pay per pay period?
    b)   What is the employee's hourly rate of pay?

69) _____

Answer: a)   52 ÷ 2 = 26
    He has 26 pay periods in a year.
    $143 000 ÷ 26 = $5500
    The employee's gross pay per pay period is $5500

    b) $5500 ÷ 10 = $550
    $550 ÷ 8 = $68.75
    The employee earns $68.75 per hour.

70) Compute 187% of 342.

70) _____

Answer: 639.54

71) Dorian Frump invested $12 500 in a business on January 1. She withdrew $850 on April 3, reinvested $1920 on August 1, and withdrew $700 on September 1. What is Don's average monthly investment balance for the year?

71) _____

Answer: Weighted investment:

January 1 — March 31:	12500 × 3/12 = 3125.0000
April 1 - July 31:	11650 × 4/12 = 3883.3333
August 1 - August 31:	13570 × 1/12 = 1130.8333
September 1 - December 31:	12870 × 4/12 = 4290.0000
Average investment balance =	$12429.17

72) Heart of Gold Realty sold lots for $50 000 per hectare. What is the total sales value if the lot sizes, in hectares, were 1 3/4, 2 1/3, 3 5/8, and 4 1/6?

72) _____

Answer: Total size $= \left[1\dfrac{3}{4} + 2\dfrac{1}{3} + 3\dfrac{5}{8} + 4\dfrac{1}{6} \right]$ ha

$= (1.75 + 2.3333333 + 3.625 + 4.1666667)$ ha

$= 11.875$ ha

Sales value $= 50000 × 11.875 = \$593\ 750.00$

73) A salesperson had gross earnings of $943.25 for last week on gross sales of $8320.00. If returns and allowances were 5.5% of gross sales, what is his rate of commission based on net sales?

73) _____

Answer: Net sales $= (1 - .055) * 8320 = 7862.40$

Commission rate $= \dfrac{943.25}{7862.40} = 11.997\%$

74) September is paid on a weekly commission basis. She is paid a base salary of $370.00 on a weekly quota of $9500.00 and a commission of 5.75% on any sales in excess of the quota.
a)   If September's sales for last week were $11 340.00, what were her gross earnings?
b)   What are September's average hourly earnings if she worked 35 hours?

74) _____

Answer: a)   Base salary on quota of $9500   =   370.00
Commission = 5.75% on 1840   =   105.80
Gross earnings   = $475.80
b)   Hourly rate = 475.80 ÷ 35 = $13.59

75) Evaluate and round to one decimal place: 9210(5 - 1.38 * 169/420)

75) _____

Answer: 9210 * (5 - 1.38 * 0.40238095) = 9210 * (5 - 0.5552857) = 9210(4.444714) = 40,935.8

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

76) Simplify: $5\dfrac{3}{4} + 7\dfrac{5}{8} - 9\dfrac{1}{2}$

76) _____

A) $3\dfrac{7}{8}$ B) $3\dfrac{7}{16}$ C) $3\dfrac{1}{16}$ D) $22\dfrac{7}{8}$ E) $3\dfrac{1}{8}$

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

77) Evaluate: 400(1 + .10 * 100/365)

77) _____

Answer: 400 * (1 + .10 * .2739726) = 400 * (1 + .02739726) = 400 * (1.02739726) = 410.959

78) In 2011, Danny invested his savings among four mutual funds as follows: 25% in bonds   78) _____
fund, 20% in Canadian equity fund, 40% in US equity fund, and the rest in money markets.
During the past year, the rates of return on the individual funds were 7%, 3%, 9%, and
-1%, respectively. What was the overall return rate on his portfolio?

Answer: Contributing rate of return from bonds fund = 25% × 7% = 1.75%
Contributing rate of return from Canadian equity fund = 20% × 3% = 0.6%
Contributing rate of return from US equity fund   = 40% × 9% = 3.6%
Contributing rate of return from money market   = (100% - 25% - 20% - 40%) ×
(-1%)

$$= 15\% \times (-1\%) = -0.15\%$$

Overall return rate on portfolio = 1.75% + 0.6% + 3.6% - 0.5% = 5.8%

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

79) Simplify: $10 + \dfrac{40 - 10 \times 4}{2} - 5$ 79) _____

A) 5   B) 55   C) 2   D) 7.5   E) 8

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

80) A retailer returned 300 defective items to the manufacturer and received a credit for the   80) _____
retail price of $0.75 less a discount of 1/3 of the retail price. What was the amount of the
credit received by the retailer?

Answer: Retail value = 300($0.75) = $225
Credit = (1-1/3)∗ $225 = (2/3) ∗ $225 = $150

81) Samir plans to sell his 2400 sq. ft. bungalow in Whitby for $389 000 and buy a similar-sized   81) _____
house in Oshawa for $369 000. Whitby charges the property tax at the mill rate of 13.59815,
whereas Oshawa charges the property tax at the mill rate of 16.18347. What will be his net
property tax penalty/saving?

Answer: Property Tax in Whitby = $\dfrac{13.59815}{1000}$ × 389000 = $5289.68

Property Tax in Oshawa = $\dfrac{16.18347}{1000}$ × 369000 = $5971.70

Net property tax penalty = $682.02

82) Evaluate: $\dfrac{268}{4400 * 156/366}$ 82) _____

Answer: 268/(4400 ∗ .4262295) = 268/1875.4098 = .1429021

83) Complete the following inventory sheet and find the total value. 83) _____

Item	Quantity	Cost per Unit	Total
1	69	$.85	
2	111	16 2/3 cents	
3	155	$2.75	
4	350	$1.66	

Answer:
1161616161669 × 0.85	=	$58.65
111 × 0.16 2/3 = 330 × 0.1666667	=	18.50
155 × 2.75	=	426.25
350 × 1.66	=	581.00
		$1084.40

84) Esther's flower shop had sales revenue of $152 000.00 for the year. If the shop's GST taxable   84) _____
expenses were 29 920.00. Calculate how much Colleen should remit to the government at
the end of the year.

Answer: GST collected = (0.05)152 000 = $7 600
        GST paid = (0.05)29 920 = $1 496
          GST remittance = 7600 - 1496   = $6104

85) Simplify: $9(8 - 5) + 5(6 + 4)$ 85) _____

Answer: $9 * 3 + 5 * 10 = 27 + 50 = 77$

86) Extend each of the following and determine the total. 86) _____

Quantity	Unit Price
48	$2.45
48	$0.83\frac{1}{8}$
16	$2.12
60	$1.33\frac{1}{6}$

Answer:
Quantity	Unit Price	Value
48	$2.45	$117.60
48	0.83 1/8	39.90
16	2.12	33.92
60	1.33 1/6	79.90
Total:		$271.32

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

87) Simplify: $6 + \dfrac{28 - 6 \times 4}{2} - 4$ 87) _____

A) 4   B) 46   C) 18   D) 24   E) 8

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

88) Three mechanics worked $15\frac{1}{2}$, $14\frac{3}{4}$, $18\frac{1}{8}$ hours respectively. What was the total cost of   88) _____

labour if the mechanics were paid $14.75 per hour?

Answer: Total Hours

$$= 15\frac{1}{2} + 14\frac{3}{4} + 18\frac{1}{8}$$

= 15.5 + 14.75 + 18.125
= 48.375
Total cost of labor = 48.375 ∗ 14.75 = $713.53

89) Determine the amount of provincial sales tax in Quebec after purchasing an electric key   89) _____
board for $182.

Answer: 9.975% of 182 = 0.09975(182) = $18.15

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

90) Abu sells mutual funds for CIBC. On mutual funds sales, CIBC charges a "front-end load" or gross   90) _____
commission rate of 5%. Abu is paid on a graduated commission structure. He receives 30%
commission on the first $50 000 worth of mutual funds he sells in a month, 40% commission for the
next $50 000 worth of mutual funds, and 75% commission on all additional sales in the same
month. What is Abu's commission for a month in which he sells $150 000 worth of mutual funds?
   A) $5625   B) $2250   C) $2700   D) $4500   E) $3625

Answer: E

91) The engineering department of a consulting company has 8 junior engineers working at   91) _____
$24.75/hour, 5 senior engineers working at $39.49/hour, and an engineering manager working at
$47.24 per hour. Calculate the weighted average hourly rate earned by the engineering department.
   A) $34.05   B) $88.19   C) $35.09   D) $37.16   E) $31.62

Answer: E

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

92) A store located in Penticton, B.C., sells a computer for $2975.00 plus HST. If the same   92) _____
model is sold at the same price in a store in Thunder Bay, Ontario, what is the difference in
the prices paid by consumers in the two stores?

Answer: Amount paid in Penticton, BC
              = Retail Price + 12% HST
              = 2975(1.12)
              = $3332.00
              Amount paid in Thunder Bay, ON
              = Retail price + 13%HST
              = 2975(1.13)
              = $3361.75
              The difference = 3361.75 - 3332 = $29.75, that is the 1% difference in the HST.

93) Noriko's final mark for her Financial Mathematics course was based on four tests with different weightings. Test one counted for 10% of the final grade, test two for 20%, test three for 30% and test four for 40%. If Clara received 70% on test one, 85% on test two, 64% on test three and 72% on test four, calculate her final mark.

93) _____

Answer: = 70(0.1) + 85(0.2) + 64(0.3) + 72(0.4)
= 7 + 17 + 19.2 + 28.8
= 72

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

94) Simplify the following:

$$7125 \times \left[4 - \frac{425}{775} \right]$$

94) _____

A) 25592.74 B) 27592.74 C) 24592.74 D) 23592.74 E) 26592.74

Answer: C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

95) Scott Rae had gross earnings of $554.30 for last week. Scott earns a base salary of $350.00 on a weekly quota of $4 500.00. If his sales for the week were $6124.00, what is his commission rate?

95) _____

Answer: Gross earnings   = $554.30
         Less: base salary   =   350.00
              Commission: = $204.30
         Sales for week   = $6124.00
         Quota   =   4500.00
              Commission sales = $1624.00

Rate of commission = $\frac{204.30}{1624.00}$ = 12.58%

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

96) Convert 99.5% into decimals.

96) _____

A) 0.995 B) 9.95 C) 0.9 D) 0.99 E) 0.999

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

97) Pooja has an annual salary of $98 351.00 and is paid biweekly. Her regular workweek is 32 hours.
a) What is Pooja's gross pay per pay period?
b) What is the hourly rate of pay?
c) What are the gross overtime earnings for Pooja if the overtime rate is one and three quarters the regular hourly rate of pay and she works 8 extra hours?

97) _____

Answer: a) Yearly salary   = $98 351.00
            Biweekly gross pay   = 98 351/26 = $3782.73
        b) Biweekly gross pay   = $3782.73
            Weekly gross pay   = 3782.73/2 = $1891.37
            Hourly rate   = 1891.37/32 = $59.11
        c) Hourly rate   = $59.11
            Gross overtime earnings = 59.11(1.75)(8) = $827.54

98) Simplify, then round to the nearest hundredth: $\dfrac{2540}{2 - 0.44 + \dfrac{671}{1342}}$

98) _____

Answer: $= \dfrac{2540}{1.56 + \dfrac{671}{1342}}$

$= \dfrac{2540}{1.56 + \dfrac{1}{2}}$

$= \dfrac{2540}{1.56 + 0.5}$

$= \dfrac{2540}{2.06}$

$= 1233.01$

99) Norm Bates is paid a semi-monthly salary of $792.50. Regular hours are 37 1/2 per week and overtime is paid at time and one-half regular pay.
   a) What is Norm's hourly rate of pay?
   b) How many hours overtime did Norm work in a pay period for which his gross pay was $946.30?

99) _____

Answer:
   a) Annual salary = 792.50 × 24 = 19020.00
       Weekly pay = 19020.00 ÷ 52 = 365.76923
       Hourly rate of pay = 365.76923 ÷ 37.5 = $9.75
   b) Gross earnings   = 946.30
       Regular earnings   = 792.50
       Overtime pay   = 153.80
       Overtime hourly rate = 9.75 × 1.5 = 14.625
       Overtime hours = 153.80 ÷ 14.625 = 10.516 hr.

100) Spade Realty sold lots for $17 120 per hectare. What is the total sales value if the lot sizes, in hectares, were 5 3/4, 7 1/3, 5 5/8, and 4 1/6?

100) _____

Answer: Total size $= \left[5\dfrac{3}{4} + 7\dfrac{1}{3} + 5\dfrac{5}{8} + 4\dfrac{1}{6}\right]$ ha

$= (5.75 + 7.3333333 + 5.625 + 4.1666667)$ ha

$= 22.875$ ha

Sales value $= 17120 \times 22.875 = \$391620.00$

101) A small town has a total residential assessment of $1.1 billion. The town must meet expenditures of $300 million.
a) If 80% of the expenditures are charged against residential real estate, calculate then total property taxes that must be raised.
b) Calculate the mill rate.
c) Calculate the property tax on a property assessed at $500 000.00

101) _____

Answer:

a) Total Residential property tax = 0.8(300 000 000) = $240 000 000

b) Mill rate = $\frac{240000000}{1100000000}(1000) = 218.18$

c) Property tax = $500000\left[\frac{218.18}{1000}\right] = \$109\ 090$

102) Change the following percent into a common fraction in lowest terms: 82.6%

102) _____

Answer: $\frac{413}{500}$

103) Jessica Hughes invested $40 000 on January 1 in a partnership. She withdrew $15 000 on June 1, withdrew a further $2000 on August 1, and reinvested $8 000 on November 1. What was her average monthly investment balance for the year?

103) _____

Answer: January 1 - May 31:   40000 × 5 =   200000
June 1 - July 31:   25000 × 2 =   50000
August 1 - October 31:   23000 × 3 =   69000

November 1 - December 31: $31000 \times \frac{2}{12} =$ 62000

Total   381000

Average monthly investment = $\frac{381000}{12}$ = $31 750.00

104) Spade Realty sold lots for $23 240 per hectare. What is the total sales value if the lot sizes, in hectares,

were $2\frac{1}{2}$, $3\frac{1}{4}$, $4\frac{1}{5}$?

104) _____

Answer: $23240 * (\frac{1}{2} + 3\frac{1}{4} + 4\frac{1}{5})$

= 23240 * (2 10/20 + 3 5/20 + 4 4/20)
= 23240 * (9 19/20) = 23240 * 9.95
= $231238

105) Abigail receives a commission of 4.5% on the first $1250.00 of sales during a week. On the next $4500.00 she receives a commission of 11.5%. On any additional sales, the commission rate is 13.75%. Find her gross earnings for a week during which her sales amount to $14 200.00.

105) _____

Answer: Commission on first $1250.00 is 0.045 × 1250.00 = 56.25
Commission on next $4500.00 is 0.115 × 4500.00 = 517.50
Commission on remainder = 0.1375 × 8450 = 1161.875
After rounding to the nearest cent, gross earnings are $1293.63.

106) Bill earned a gross commission of $2551.05 during August. What were his gross sales if his rate of commission is 14.5% of net sales and sales returns and allowances for the month were 6% of his sales?

Answer: Net sales = 2551.05 ÷ 0.145 = 17593.448

Net sales = Gross sales - returns

17593.448 = Gross sales - 6% of Gross sales

17593.448 = 94% of Gross sales

Gross sales = $\dfrac{17593.48}{.94}$ = $18 716.43

107) The following information is shown in your investment account for last year. The balance on January 1 was $7600.00. A withdrawal of $420.00 was made on March 1. A deposit of $1690.00 was made on May 1 and another deposit of $130.00 was made on October 1. What was the average monthly balance for the year in your account?

Answer:

Date	Balance	Months	Weighted value
January	1	7600	2	15 200
March	1	7180	2	14 360
May	1	8870	5	44 350
October	1	8740	3	26 220
		Total:	12	100 130

Average monthly balance = 100130/12 = $8344.17

108) Ana, Aamir and Charlotte worked $11\frac{3}{4}$, $14\frac{13}{20}$, and $22\frac{4}{5}$ hours respectively. What was the total cost of labour if they were paid $18.00 per hour?

Answer: Total Hours

$= 11\frac{3}{4} + 14\frac{13}{20} + 22\frac{4}{5}$

= 11.75 + 14.65 + 22.80

= 49.20

Total cost of labor = 49.20 * 18.00 = $885.60

109) Evaluate and round to three decimal places: $\dfrac{3140}{2 + 0.035 \times \dfrac{155}{730}}$

Answer: 3140/(2 + 0.35 * 0.2123288) = 3140/(2 + 0.0743151) = 2910/2.074315068 = 1513.753

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

110) You are supposed to teach $15\frac{2}{3}$ credit hours per week per term for a trimester school year.   110) _____

Anything above is considered to be overtime and is compensated at time and one-half you regular rate of $27.13 per hour. You work the following credit hours. How much total overtime, for the entire term, does your employer owe you at the end of the third term (assume that you were not paid any overtime in terms one and two and that the term is 15 weeks long)?

Term	Credit Hours
1	20
2	26
3	19

A) $9987.50   B) $11 987.50   C) $8987.5   D) $11 187.50   E) $10 987.50

Answer: E

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

111) Change 0.035 into a percent.   111) _____

Answer: 0.035 * 100 = 3.5%

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

112) Raj works for Honda Pickering on commission based on each unit sold. He gets $700 for every used   112) _____
car he sells and $975 for every new car. He sold 8 used cars and 5 new cars in January 2020. What was his gross earning in January?

A) $4875   B) $10,475   C) $11,300   D) $5600

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

113) A town has a total residential assessment of 900 million dollars. The town must meet   113) _____
expenditures of $45 million.
a)   If 90% of the expenditures are charged against residential real estate, calculate then total property taxes that must be raised.
b)   Calculate the mill rate.
c)   Calculate the property tax on a property assessed at $235 000.00

Answer: a)   Total Residential property tax = 0.9(45 000 000) = $40 500 000

b)   Mill rate = $\frac{40500000}{900000000}(1000) = 45$

c)   Property tax = $235000\frac{45}{1000} = \$10\ 575.00$

114) Isabelle works for The Brick, a furniture company. She earns a base salary $12/hr, 40 hours a week. However, she is also paid commission of 2% for all sales and an extra lump sum of $1000 incentive if her monthly sales exceed $10 000. In the month August, she won the title of employee of the month for total sales of $75 000. How much did she earn in the month of August, assuming a 4 week month?

114) _____

Answer: Base salary = 12 × 40 × 4 = $1920
Commission earned in August = 2% × 75000 = $1500
Total pay for August = $1920 + $1500 + $1000 = $4420

115) Purchases of packs of printing paper during the last accounting period were as follows:

115) _____

Number of items	Unit price
8	$13.00
4	$12.00
15	$10.00
10	$10.50

What was the weighted average price per item?

Answer:
Number of items		Unit price		Weighted value
8	×	$13.00	=	104.00
4	×	$12.00	=	48.00
15	×	$10.00	=	150.00
10	×	$10.50	=	105.00
Total: 37				407.00

Average price was 407/37 = $11.00

116) A sales representative selling computer parts receives a commission of 3.5% on net sales up to $15 000.00, 7% on the next $6000.00, and 9% on any further sales. If his sales for a month were $34 250.00 and sales returns were $1055.00, what was his commission for the month?

116) _____

Answer: Gross sales   = $34250.00
Less: returns   =   1055.00
Net sales   = $33195.00
Commission: = .035 × 15000.00   = $525.00
= .07 × 6000.00   =   420.00
= .09 × 12195.00   =   1097.55
Total commission   = $2042.55

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

117) Change 0.2% into a fraction.

117) _____

A) $\frac{1}{50}$ B) $\frac{1}{2}$ C) $\frac{1}{5}$ D) $\frac{1}{500}$ E) $\frac{1}{12}$

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

118) Corrine Davis had gross earnings of $937.50 for the week. If she receives a base salary of $664.00 on a quota of $7800.00 and a commission of 6.75% on sales exceeding the quota, what were Corrine's sales for the week?

118) _____

Answer: Gross earnings   =   937.50
          Less: base salary   =   664.00
             Commission: 273.50

$$\text{Commission sales} = \frac{273.50}{.0675} = 4051.85$$

Sales for week = $(7800 + 4051.85) = $11\ 851.85$

119) Mark's gross wages for a week were $711.20. His regular workweek is 40 hours and overtime is paid at time and one-half regular pay. What is Mark's regular hourly wage if he worked 45 1/2 hours?

119) _____

Answer: Total hours   =   45.5
          Regular hours   =   40.00
          Overtime hours =   5.5
5.5 overtime hours are equivalent to 5.5 × 1.5 = 8.25 regular hours.

$$\text{Hourly rate of pay} = \frac{711.20}{48.25} = \$14.74$$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

120) Your full-time job pays you a bi-weekly salary of $2963.56. In addition to this position you have been working part-time for the last 15 months and earn $500 semi-monthly. You have other payments that total $14 400 per year. What is the maximum monthly amount that your payments can be towards a house purchase? Assume that property taxes and heating costs are included in the $14 400.

120) _____

  A) $3488.42
  B) $2844.42
  C) $2488.42
  D) $1961.42
  E) none of the above

Answer: C

121) Calculate the final answer for the following expression:

121) _____

$(5^3 + 2^2) \div 20$

  A) 4.45   B) 6.45   C) 9.45   D) 7.45   E) 5.45

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

122) Nick's gross earnings for one week was $698.10. His regular rate of pay is $15.60 for a 35 hour week and overtime is paid at time and one-half regular pay. Calculate the number of hours that Nick worked.

122) _____

Answer: Gross earnings = 698.10
Regular earnings = 35 × 15.60 = 546.00
Overtime pay = 698.10 - 546.00 = 152.10
Overtime hours = $\dfrac{152.10}{15.60 \times 15}$ = 6.5 hours

Total number of hours worked = 35 + 6.5 = 41.5 hours

123) A retail chain sells snowboards for $855.00 plus GST and PST. What is the price difference for consumers in London, Ontario, and Lethbridge, Alberta?

123) _____

Answer: Total cost in London
Retail price	=	$855.00
HST = 13% of $855.00 = 0.13(855)		$111.15
Total cost in London	=	$966.15

Total cost in Lethbridge
Retail price	=	$855.00
GST = 5% of $855.00 = 0.05(855)		$42.75
PST		nil
Total cost in Lethbridge		$897.75
Difference = PST		$68.40

124) Complete the following statement:

124) _____

Quantity	Description	Unit Price	Total $
88	Alpha	$0.37	
65	Bravo	$96\dfrac{4}{5}$ ¢	
73	Charlie	$0.675	
46	Delta	$1.44	

Answer:

Quantity	Description	Unit Price	Total $
88	Alpha	$0.37	32.56
65	Bravo	$96\dfrac{4}{5}$ ¢	62.92
73	Charlie	$0.675	49.275
46	Delta	$1.44	66.24

125) Certify Auto Repair (CAR) files GST returns annually. In 2012, CAR billed its customers $195 432 for labour, $24 732 for parts, and then added the GST. During this year, CAR paid $19 785 for parts, $36 000 for rent, $9767 for utilities, and $21 873 for shop repairs, plus the GST on these goods and services. What GST must be remitted (or refunded by the CRA) for the year 2012?

125) _____

    Answer: Total Revenue = 195432 + 24732 = $220 164
            Total Costs = 19785 + 36000 + 9767 + 21873 = $87 425
            Net Revenue = 220164 - 87425 = $132 739
            GST remitted = $6636.95

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

126) Your gross annual pay is $19 163. Employment insurance premiums are deducted at a rate of 2.25% and Canada Pension Plan premiums are 3.75% based on total earnings. You pay income taxes at a rate of 17% on all amounts over $8131. What is your Net Pay for the year?

126) _____

    A) $15 137.78   B) $16 137.78   C) $16 317.78   D) $17 137.78   E) $18 237.78

    Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

127) Denise Jantz invested $35 000 on January 1 in a partnership. She withdrew $5000 on June 1, withdrew a further $1900 on August 1, and reinvested $6 000 on November 1. What was her average monthly investment balance for the year?

127) _____

    Answer: January 1 - May 31:   35000 × 5 =   175000
            June 1 - July 31:   30000 × 2 =   60000
            August 1 - October 31:   28100 × 3 =   84300

            November 1 - December 31: $34100 \times \dfrac{2}{12} =$ 68200

               Total   387500

            Average monthly investment $= \dfrac{387500}{12} = \$32\ 291.67$

128) Simplify: 5(4 + 3)

128) _____

    Answer: 5 * 7 = 35

129) R.J. earns $11.70 an hour, with time-and-a-half for hours worked over 36 a week. His clock hours for a week are 10.5, 7.5, 11, 13, and 9.75. Determine his gross earnings for a week.

129) _____

    Answer: Total hours = 10.5 + 7.5 + 11 + 13 + 9.75 = 51.75
            Regular weekly earnings = 36 × $11.70 = $421.20
            Overtime earnings = (51.75 - 36) × $11.70 × 1.5 = $276.41
            Gross = Regular time + Overtime = $421.20 + $276.41 = $697.61

130) Last week April worked 44 hours. She is paid $11.20 per hour for a regular workweek of 40   130) _____
hours and overtime at time and one-half regular pay.
   a)   What were April's gross wages for last week?
   b)   What is the amount of the overtime premium?

Answer: a)   Regular earnings = 40 × 11.20   =   448.00
                  Overtime pay = 4 × 11.20 × 1.5   =   <u>67.20</u>
                      Gross earnings   = $515.20

        b)   Overtime premium = 4 × 11.20 × 0.5 = $22.40

131) Express 93/44 as a percent.   131) _____

Answer: 211.36%

132) Alicia Helm of Wawanesa, Manitoba, bought a ring for $5700. Since the jeweller is   132) _____
shipping the ring, Alicia must pay a shipping charge of $30.00. She must also pay PST and
GST on the ring. Find the total purchase price of Alicia's ring.

Answer: Total value $5730.00
          GST   5% of $5730.00 $286.50
          Manitoba PST   7% of 5730.00   401.10   <u>687.60</u>
               Total purchase price $6417.60

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

133) Calculate the final answer for the following expression: $(10^3 + 20^2) \div 20$.   133) _____
    A) 20.00   B) 5000   C) 3.5   D) 70.00   E) 50.00
Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

134) Simplify: 8 + 6 ∗ 2   134) _____
Answer: 8 + 12 = 20

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

135) Justin is planning to buy a house. He has two options. A 1800 sq. ft. bungalow in Courtice costs   135) _____
$389 000. A similar house costs $369 000 in Bowmanville. Justin plans to base his decision on the
cost of property tax paid. Whitby charges the property tax at the mill rate of 13.59815, whereas
Oshawa charges the property tax at the mill rate of 16.18347. Where will he end up paying less
taxes?
    A) Taxes are the same in both the cities
     B) In Courtice
     C) In Bowmanville
     D) There is not enough data to make a decision
Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

136) Express the following as a percent: 4.55   136) _____
Answer: 455%

137) Kim Farrena earns $17.60 per hour. Overtime from Monday to Friday is paid at time and one-half regular pay for any hours over 7 1/2 per day. Overtime on weekends is paid at double the regular rate of pay. Last week Kim worked regular hours on Monday, Wednesday, and Friday, 8.5 hours on Tuesday, 11.75 hours on Thursday, and 5 hours on Saturday. Determine Kim's gross wages by each of the two methods.

137) _____

Answer: Method A

Regular hours = 37.5 × 17.60	=	660.00
Overtime pay = 5.25 × 17.60 × 1.50	=	138.60
5 × 17.60 × 2	=	176.00
Gross earnings	=	$974.60

Method B

At regular rate: 47.75 × 17.60	=	840.40
Overtime premium: 5.25 × 17.60 × 0.50	=	46.20
Overtime premium 5 × 17.60 × 1	=	88.00
Gross earnings	=	$974.60

138) A salesperson earned a commission of $926.59 for last week on gross sales of $7880. If returns and allowances were 10.5% of gross sales, what is his rate of commission based on net sales?

138) _____

Answer: Net sales = 0.895 × 7880.00 = 7052.60

$$\text{Commission rate} = \frac{926.59}{7052.60} = 13.14\%$$

139) In the first term, Sam's courses and grades were as follows:

139) _____

Course	Credit	Grade Point Value
English	2	2.7
French	2	3.0
Math	3	4.0
Physics	3	4.0
Chemistry	3	3.7
Social Science	1	3.3
Arts	1	2.0

Calculate Sam's Grade Point Average (GPA).

Answer:

Course	Credits	GPV	Credits × GPV
English	2	2.7	5.4
French	2	3.0	6.0
Math	3	4.0	12.0
Physics	3	4.0	12.0
Chemistry	3	3.7	11.1
Social Science	1	3.3	3.3
Arts	1	2.0	2.0
Total	15		51.8

$$\text{Grade Point Average} = \frac{52}{15} = 3.45$$

140) Suppose that in your Business Math course you receive the following grades (%):   140) _____

Assessment   Grade Received
Quiz 1   80%
Quiz 2   90%
Quiz 3   50%
Quiz 4   40%
Quiz 5   80%
Quiz 6   90%
Quiz 7   80%
Quiz 8   50%
Quiz 9   80%
Quiz 10   70%
Term Test 1   65%
Term Test 2   78%
Final Exam   72%

Each assessment category counts as following towards the final grade:

Assessments	Course Grade
Quizzes (best 8 out of 10)	20%
Tests (two; each 15%)	30%
Final Exam	50%

a) What is your average quiz grade in this course?
b) What is your average grade for the course overall?

Answer: a)   Quiz Average = (80 + 90 + 80 + 90 + 80 + 50 + 80 + 70)/8 = 77.5%
        b)   Average course grade = [(77.5) 20 + (65)15 + (78)15 + (72)50] / (20 + 15 + 15 + 50)
                                  = (1350 + 2145 + 3600)/100 = 70.95%

141) The town of Pandora assesses property at market value. How much will the owner of a   141) _____
house valued at $325 000 owe in taxes if this year's mill rate has been set at 21.386?

Answer: Property tax = $32500 \left[\dfrac{21.368}{1000} \right]$ = $6950.45

142) Extend each of the following and determine the total.   142) _____

Quantity   Unit Price
74                $1.35
90                $16\dfrac{1}{3}$
70                $0.885
58                $1.35

Answer: 74 × 1.35   = 99.90

         $90 \times 0.16\dfrac{1}{3}$ = 14.70

         70 × .885   = 61.95
         58 × 1.35   = 78.30
         Total $254.85

143) Change the following percent into a common fraction in lowest terms: 34%   143) _____

Answer: $\frac{17}{50}$

144) Florence Lamb is paid a commission of 10 3/4% on her net sales and is authorized to draw   144) _____
up to $900.00 a month. What is the amount due to Florence at the end of a month in which
she drew $820.00, had sales of $14 660.00, and sales returns of $331.20?

Answer: Gross sales   = $14660.00
Less: returns   =   331.20
Net sales   =   14328.80
Gross commission = 14328.80 × .1075 =   1540.35
Less: drawings   820.00
Amount due $720.35

145) Extend and total the following invoice.   145) _____

Quantity	Description	Unit Price	Amount
77	Item A	$0.65	_____
208	Item B	$83	_____
621	Item C	$1.19	_____
414	Item D	$1.95	_____
		Total	_____

Answer: 77 × 0.65   = $50.05

$208 × 0.83\frac{1}{4}$ =   173.16

621 × 1.19   =   738.99
414 × 1.95   =   807.30
                   $1769.50

146) Evaluate and round to 3 decimal places: 125(6 + 0.35 * 142/678)   146) _____

Answer: 125 * (6 + 0.35 * 0.2094395) = 125 * (6 + 0.0733038) = 125 * (6.0733038) = 759.163

147) A salesperson is paid a weekly salary of $350.00 or a commission of 14.5% of his sales,   147) _____
whichever is the greater. What is his earnings for a week in which his sales were
a) $2480.00?
b) $3780.00?

Answer: a) Salary   = $350.00
            Commission = .145 * 2480.00   = $359.60
               Gross earnings   = $709.60

        b) Salary   = $350.00
            Commission = .145 * 3780.00   = $548.10
               Gross earnings   = $898.10

148) Kevin Ash earns a semi-monthly salary of $1023.40 and works a regular workweek of 40 hours.

    a) What is Kevin's hourly rate of pay?

    b) If Kevin's gross earnings in one pay period were $1390.47, for how many hours of overtime was he paid at time and one-half of his regular pay?

148) _____

Answer: a) Semimonthly pay = $1023.40
         Yearly salary = $24 561.60
         Weekly gross pay = 24561.60 ÷ 52 = $472.34
         Hourly rate = 472.34 ÷ 40 = $11.81

      b) Gross pay   =   1390.47
         Regular pay   = - 1023.40
         Overtime pay =   367.07
         Number of overtime hours = (367.07 ÷ 1.5) ÷ 11.81 = 20.72 hrs.

1) E

2) $249500 \times \dfrac{15}{1000} = \$3742.50$

3)
Purchase price	$11.65
Less discount	1.50
Net price	10.15
Add shipping charge	2.10
Total cost before taxes	12.25
HST 15% of $12.25 1.8375	1.84
Total cost in Nova Scotia	$14.09

4) A

5) 0.01259(12500000) = 157375

6) 2424/(1 + .2 ∗ .4547945) = 2424/(1 + .0909589) = 2424/1.0909589 = 2221.899

7) Base salary = 12 × 40 × 4 = $1920
Commission earned in August = 2% × 75000 = $1500
Total incentive pay = 7 × $1000 = $7000
Total pay for August = $1920 + $1500 + $7000 = $10 420

8) 0.333

9) 24 + 21 = 45 Tip = 17% of 45 = 0.17(45) = $7.65 HST on the haircut = 14% of 24 = 0.14(24) = $3.36 HST on the colouring = 14% of 21 = 0.14(21) = $2.94 Total = 45 + 7.65 + 3.36 + 2.94 = $58.95

10) B

11) C

12) a)
Gross sales	= $11 456.00	
Commission on first $5000	= 0.134(5000)	= $670.00
Commission on next $3000	= 0.141(3000)	= $423
Commission on additional sales	= 0.15(11456 – 8000)	= $518.40
Total gross commission		= $1611.40

b) 1611.40 – 1235 = $376.40

13) a) Annual gross earnings = 1931.54 × 12 = 23 178.48

Weekly gross earnings = $\dfrac{23178.48}{52}$ = 445.74

Hourly rate of pay = $\dfrac{445.74}{38}$ = $11.73

b) Regular semi-monthly gross earnings = $\dfrac{1931.54}{2}$ = 965.77

Overtime pay = 1270.75 – 965.77 = 304.98
Overtime rate = 11.73 × 2 = 23.46
Overtime hours = $\dfrac{304.98}{23.46}$ = 13 hours

14)
GST collected	= 5% of $235000 = 0.05(235000)	=	11750.00
GST paid	= 5% of $24750 = 0.05(24750)	=	– 1237.50
GST remittance		=	$10512.50

15) D

16) Annual salary = 2754.30 × 24 = 66103.20

Weekly pay = $\dfrac{66103.20}{52}$ = 1271.22

Hourly rate = $\dfrac{1271.22}{42}$ = $30.27

17) $\dfrac{1}{13}$ of the house's actual cost is $\dfrac{4}{13}$ of the cost ÷ 4.

$246 000 ÷ 4 = $61 500.

$\dfrac{13}{13}$ of the cost or all the actual value of the house, is $\dfrac{1}{13}$ of the cost × 13.

$61 500 × 13 = $799 500

$\dfrac{13}{13}$ of the house's price is $799 500.

$799 500 ÷ $250 = $3198.
$3198 × $1.25 = $3997.50
The realtor earned $3997.50.

18) Property tax in Airdrie = 165000 $\left[\dfrac{22.051}{1000}\right]$ = 3638.42

Property tax in Kimberly = 145000 $\left[\dfrac{25.124}{1000}\right]$ = 3642.98

The person in Kimberly pays $4.56 more in property tax.

19) GST collected: 5% of $23000   = 0.05(23000)   = $1150.00
    GST Paid: 5% of 4032   = 0.05(4032)   =   - $201.60
    GST Remittance: = $948.40

20) Weekly pay = $\dfrac{41840.00}{52}$ = 804.6154

Hourly pay = $\dfrac{804.62}{40}$ = $20.1154

Regular monthly earnings = $\dfrac{41840}{12}$ = 3486.67

Overtime earnings = 20.1154 × 9 ∗ 1.5 = 271.56
Gross = Regular time + Overtime = 3486.66 + 271.56 = $3758.22

21) a)   Annual salary = 24 × 1870.80 = 44899.20
      Weekly salary = 44899.20 ÷ 52 = 863.45

      Hourly rate of pay = $\dfrac{863.45}{40}$ = $21.58625

  b)   Regular semimonthly pay   =   1870.80
      Overtime pay = 7.5 × 21.58625 × 1.5   =   242.85
        Gross earnings $2113.65

22) Base salary on first $3000   = $200.00
    Commission on next $1000 = 0.25 × 1000   =   250.00
    Commission on additional sales = (6000 - 4000) × 0.40 = 2000 ×. 40 =   800.00
      Gross earnings   = $1250.00

23) For the first 40 hours = 40(12.40) = 496.00
    For the next 6 hours = 6(12.40 + 6.20) = 111.60
    The total = 496.00 + 111.60 = $607.60

24) Total hours   = 51
    Regular hours   = 40
    Overtime hours   = 11
    At time-and-a-half, overtime hours are equivalent to
    11 × 1.5 = 16.5 regular hours
    Rate of pay = 596/56.5 = $10.55

25) $\dfrac{8}{13}$

26) $= \dfrac{11.75}{1} \times \dfrac{13}{5} + \dfrac{11.75}{1} \times \dfrac{37}{20} + \dfrac{11.75}{1} \times \dfrac{29}{6} + \dfrac{11.75}{1} \times \dfrac{15}{12} + \dfrac{11.75}{1} \times \dfrac{19}{3} + \dfrac{11.75}{1} \times \dfrac{27}{10}$

   $= \dfrac{152.75}{5} \times \dfrac{434.75}{20} \times \dfrac{340.75}{6} \times \dfrac{176.25}{12} \times \dfrac{223.25}{3} \times \dfrac{317.25}{10}$

   = 30.55 + 21.7375 + 56.7916 + 14.6875 + 74.4166 + 31.725
   = 229.91
   = The party room owners were paid $229.91 in total.

27) $4 303.00 − $243 = $4 100.00
    $4 060 ÷ 20 = $203
    $203 ÷ 6 = $33.83
    Oliver's hourly rate of pay is $33.83

28) Total hours = 9.25 + 8.5 + 10.5 + 13.5 + 6.25 = 48
    Regular hours = 8 + 8 + 8 + 8 + 6.25 = 38.25
    Overtime hours = 1.25 + 0.5 + 2.5 + 5.5 = 9.75
    Regular pay = 38.25 × 19.60   =   749.70
    Overtime pay = 9.75 × 19.60 × 1.5   =   286.65
       Gross pay   = $1036.35

29) Property tax = $326 500 × 1.05351/100 = $3439.71

30) Rate per day = $\dfrac{1345}{3}$ = $269/day

    Rate per hour = $\dfrac{1345}{35}$ = $38.43/hr

    Total working days in October 2013 = 22 days
    Pay for regular days = 269 × 22 = $5918
    Pay for overtime = 5 × 2 × 38.43 = $384.29
    Gross earnings for October 2013 = $5918 + $384.29 = $6302.29

31) $= 2[4^2 - 3 \times 12 + 4(7 - 9 \times 50)] + (6 + 9^4)$

   $= 2[16 - 3 \times 12 + 4(7 - 9 \times 50)] + 6 + 9^4$

   $= 2[16 - 36 + 4(-443)] + 6 + 9^4$

   $= 2[16 - 36 - 1772] + 6 + 9^4$

   $= 2[-1792] + 6 + 9^4$

   $= -3584 + 6 + 9^4$

   $= -3584 + 6 + 6561$

   $= -3578 + 6561$

   $= 2983$

32) 1.416

33) = 44[3 + 72 – 15 – 19] – [42 – 3(77 ÷ 7) – 9]
    = 44[60 – 19] – [42 – 3(11) – 9]
    = 44(41) – [42 – 33 – 9]
    = 44(41) – [9 – 9]
    = 1804 – 0
    = 1804

34) D

35) a) Semimonthly pay = 50292.48 ÷ 24 = 2095.52
    b) Weekly pay = 50292.48 ÷ 52 = 967.16308
       Hourly rate = 967.16308 ÷ 37.5 = 25.791015
    c) Regular earnings   =   2095.52
       Overtime pay = 12.5 × 25.791015 × 1.5 =   <u>483.58</u>
          Gross earnings   = $2579.10

36) Annual salary = 1250.00 × 24 = 30000.00

   Weekly pay $= \dfrac{30000}{52} = 576.92$

   Hourly rate $= \dfrac{576.92}{35} = \$16.48$

37) 67%

38) Let the regular rate of pay be y.
   Regular weekly pay = 37.5y
   Overtime pay = (9.75 × 1.5)y = 14.625y
   Total pay = 37.5y + 14.625y = 750.7
                52.125y = 750.73
                    y = 14.40
   The regular rate of pay is $14.40

39) C

40) 5000/(1 + .1 ∗ .5) = 5000/(1 + 0.05) = 5000/1.05 = 4761.90

41) B

42) E

43) 5/20 = .25

44) $(4 + 6(2)^2 + 2)/15 = (4 + 6(4) + 2)/15 = (4 + 24 + 2)/15 = 30/15 = 2$

45) a) 66 + 69 + 80 + 57 = 272
      Average number of litres = 272 ÷ 4 = 68
    b) Average cost per litre:
      Total cost = 66 × 69.0 =   45.54
      69 × 70.5 =   48.645
      80 × 71.5 =   57.20
      57 × 74.5 =   <u>42.465</u>
                      193.85 cents
      Average cost = 193.86 ÷ 272 = 71.27 cents
    c) Average cost per km = 71.27 ÷ 9.75 = 7.3097436 cents

46) 3 + 30 = 33

47) $0 are invested for 2 months
$90,000 are invested for 3 months
$90000 + $10000 = $100,000 are invested for 1 month
$100,000 - $17000 = $83000 are invested for 2 months
$83000 + $2000 = $85000 are invested for 4 months

$$\text{Average investment} = \frac{0 \times 2 + 9000 \times 3 + 100000 \times 1 + 83000 \times 2 + 85000 \times 4}{12}$$

$$= \frac{876000}{12} = \$73\,000 \text{ per month}$$

48) Base salary on first $2900   = $800.00
Commission on next $2100 = 0.14 × 2100   =   294.00
Commission on additional sales = (8455 - 5000) × 0.19 = 3455 × .19 =   656.45
  Gross earnings   = $1750.45

49) a) Total expenditure = $(11050000 + 2100000 + 270000 + 670000 + 958500)
= 14947500
Total residential property tax = 0.70(14947500) = $10463250

b) Residential mill rate $= \dfrac{10463250}{350000000}(1000) = 29.895$

c) Property tax $= \$235000 \left[\dfrac{29895}{1000} \right] = \$7025.33$

50) a) $\dfrac{42120}{2 \times 12} = \$1755.00$

b) $\dfrac{42120}{52 \times 36} = \$22.50$

c) Overtime = 12 × 22.50 × 1.5 = $405.00
Gross pay = 1755.00 + 405.00 = $2160.00

51) Total property tax rate = 4.19938 + 7.18877 + 2.21 = 13.59815

$$\text{Total property tax} = \frac{13.59815}{1000} \times 339500 = \$4616.57$$

52) = (2 + 9 + 0.875 + 34.02 + 52 + 1 + 83.75 + 0.5 + 6 + 4.909)/10 = 19.405

53) Weighted investment:
January 1 - February 28:   10000 × 2/12 = 1666.6700
March 1 - June 30:   9000 × 4/12 = 3000.0000
August 1 - August 31:   14000 × 3/12 = 3500.0000
September 1 - December 31:   10000 × 3/12 = 2500.0000
Average investment balance = $10666.67

54) 87.5%

55) 69/88

56) 40/20 = 2

57) C

58) Savings on PST = 7% of $52.00 = 0.07(52.00) = $3.64

59) (28 - 4)/3 = 24/3 = 8

60) B

61) $160\,000 \times \dfrac{20}{1000} = \$3200.00$

62)
Number of items		Unit price		Weighted value
5	×	$5.00	=	25.00
10	×	8.00	=	80.00
8	×	6.00	=	48.00
15	×	3.00	=	45.00
Total: 38				198.00

Average price was 198/38 = $5.21

63) B

64) Barb's revenue of $38 790 includes 5% GST.

GST taxable revenue = $\dfrac{38790}{1.05}$ = 36 942.86

GST collected = 5% of 36 942.86 = 1 847.14
GST paid = 5% of 9 500 = 475.00
Barb owes Revenue Canada $1847.14 – $475 = $1372.14

65) 0.25/100 = 0.0025

66) E

67) Amount paid in Oakville, Ont
   = Retail Price + 13% HST
   = 1000(1.13)
   = $1130
   Amount paid in Victoria, B.C.
   = Retail price + 12% HST
   = 1000 (1.12)
   = $1120
   The difference = 1130– 1120 = $10.00, that is the 1% difference in the HST

68) a)   Net sales = Gross sales – Returns = 11 160 – 120 = 11 040
       Commission: 2% of 6000 = 120.00
                     4% of 3000 = 120.00
                     6.25% of (11 040 – 9000) = 127.50
       Gross earnings = 120.00 + 120.00 + 127.50 = $367.50
   b)   Average hourly rate = 367.50 ÷ 40 = $9.19

69) a)   52 ÷ 2 = 26
   He has 26 pay periods in a year.
   $143 000 ÷ 26 = $5500
   The employee's gross pay per pay period is $5500

   b) $5500 ÷ 10 = $550
   $550 ÷ 8 = $68.75
   The employee earns $68.75 per hour.

70) 639.54

71) Weighted investment:
January 1 — March 31:	12500 × 3/12 = 3125.0000
April 1 - July 31:	11650 × 4/12 = 3883.3333
August 1 - August 31:	13570 × 1/12 = 1130.8333
September 1 - December 31:	12870 × 4/12 = 4290.0000
Average investment balance =	$12429.17

72) Total size $= \left[1\frac{3}{4} + 2\frac{1}{3} + 3\frac{5}{8} + 4\frac{1}{6}\right]$ ha

$= (1.75 + 2.3333333 + 3.625 + 4.1666667)$ ha

$= 11.875$ ha

Sales value $= 50000 \times 11.875 = \$593\ 750.00$

73) Net sales $= (1 - .055) * 8320 = 7862.40$

Commission rate $= \dfrac{943.25}{7862.40} = 11.997\%$

74) a) Base salary on quota of $9500 = 370.00

Commission = 5.75% on 1840 = 105.80

Gross earnings = $475.80

b) Hourly rate = 475.80 ÷ 35 = $13.59

75) $9210 * (5 - 1.38 * 0.40238095) = 9210 * (5 - 0.5552857) = 9210(4.444714) = 40{,}935.8$

76) A

77) $400 * (1 + .10 * .2739726) = 400 * (1 + .02739726) = 400 * (1.02739726) = 410.959$

78) Contributing rate of return from bonds fund = 25% × 7% = 1.75%

Contributing rate of return from Canadian equity fund = 20% × 3% = 0.6%

Contributing rate of return from US equity fund = 40% × 9% = 3.6%

Contributing rate of return from money market = (100% - 25% - 20% - 40%) × (-1%)

= 15% × (-1%) = -0.15%

Overall return rate on portfolio = 1.75% + 0.6% + 3.6% - 0.5% = 5.8%

79) A

80) Retail value = 300($0.75) = $225

Credit = (1 - 1/3)* $225 = (2/3) * $225 = $150

81) Property Tax in Whitby $= \dfrac{13.59815}{1000} \times 389000 = \$5289.68$

Property Tax in Oshawa $= \dfrac{16.18347}{1000} \times 369000 = \$5971.70$

Net property tax penalty = $682.02

82) $268/(4400 * .4262295) = 268/1875.4098 = .1429021$

83) 1161616161669 × 0.85 = $58.65

111 × 0.16 2/3 = 330 × 0.1666667 = 18.50

155 × 2.75 = 426.25

350 × 1.66 = 581.00

$1084.40

84) GST collected = (0.05)152 000 = $7 600

GST paid = (0.05)29 920 = $1 496

GST remittance = 7600 - 1496 = $6104

85) $9 * 3 + 5 * 10 = 27 + 50 = 77$

86)
Quantity	Unit Price	Value
48	$2.45	$117.60
48	0.83 1/8	39.90
16	2.12	33.92
60	1.33 1/6	79.90
Total:		$271.32

87) A

88) Total Hours

$$= 15\frac{1}{2} + 14\frac{3}{4} + 18\frac{1}{8}$$

= 15.5 + 14.75 + 18.125

= 48.375

Total cost of labor = 48.375 ∗ 14.75 = $713.53

89) 9.975% of 182 = 0.09975(182) = $18.15

90) E

91) E

92) Amount paid in Penticton, BC

= Retail Price + 12% HST

= 2975(1.12)

= $3332.00

Amount paid in Thunder Bay, ON

= Retail price + 13%HST

= 2975(1.13)

= $3361.75

The difference = 3361.75 - 3332 = $29.75, that is the 1% difference in the HST.

93) = 70(0.1) + 85(0.2) + 64(0.3) + 72(0.4)

= 7 + 17 + 19.2 + 28.8

= 72

94) C

95) Gross earnings   = $554.30

Less: base salary   =   350.00

   Commission: = $204.30

Sales for week   = $6124.00

Quota   =   4500.00

   Commission sales   = $1624.00

Rate of commission = $\dfrac{204.30}{1624.00}$ = 12.58%

96) A

97) a)   Yearly salary   = $98 351.00

    Biweekly gross pay   = 98 351/26 = $3782.73

  b)   Biweekly gross pay   = $3782.73

    Weekly gross pay   = 3782.73/2 = $1891.37

    Hourly rate   = 1891.37/32 = $59.11

  c)   Hourly rate   = $59.11

    Gross overtime earnings = 59.11(1.75)(8) = $827.54

98) $= \dfrac{2540}{1.56 + \dfrac{671}{1342}}$

$= \dfrac{2540}{1.56 + \dfrac{1}{2}}$

$= \dfrac{2540}{1.56 + 0.5}$

$= \dfrac{2540}{2.06}$

$= 1233.01$

99)
    a) Annual salary = 792.50 × 24 = 19020.00
          Weekly pay = 19020.00 ÷ 52 = 365.76923
          Hourly rate of pay = 365.76923 ÷ 37.5 = $9.75
    b) Gross earnings   = 946.30
          Regular earnings   = 792.50
          Overtime pay   = 153.80
          Overtime hourly rate = 9.75 × 1.5 = 14.625
          Overtime hours = 153.80 ÷ 14.625 = 10.516 hr.

100) Total size $= \left[5\dfrac{3}{4} + 7\dfrac{1}{3} + 5\dfrac{5}{8} + 4\dfrac{1}{6}\right]$ ha
                   $= (5.75 + 7.3333333 + 5.625 + 4.1666667)$ ha
                   $= 22.875$ ha
    Sales value = 17120 × 22.875 = $391620.00

101)
    a) Total Residential property tax = 0.8(300 000 000) = $240 000 000
    b) Mill rate $= \dfrac{240000000}{1100000000}(1000) = 218.18$

    c) Property tax $= 500000\left[\dfrac{218.18}{1000}\right] = \$109\ 090$

102) $\dfrac{413}{500}$

103) January 1 - May 31:   40000 × 5 =   200000
     June 1 - July 31:   25000 × 2 =   50000
     August 1 - October 31:   23000 × 3 =   69000
     November 1 - December 31:   31000 × $\dfrac{2}{12}$ =   62000

         Total   381000
     Average monthly investment $= \dfrac{381000}{12} = \$31\ 750.00$

104) $23240 * (\dfrac{1}{2} + 3\dfrac{1}{4} + 4\dfrac{1}{5})$

    $= 23240 * (2\ 10/20 + 3\ 5/20 + 4\ 4/20)$
    $= 23240 * (9\ 19/20) = 23240 * 9.95$
    $= \$231238$

105) Commission on first $1250.00 is 0.045 × 1250.00 = 56.25
 Commission on next $4500.00 is 0.115 × 4500.00 = 517.50
 Commission on remainder = 0.1375 × 8450 = 1161.875
 After rounding to the nearest cent, gross earnings are $1293.63.

106) Net sales = 2551.05 ÷ 0.145 = 17593.448
 Net sales = Gross sales - returns
 17593.448 = Gross sales - 6% of Gross sales
 17593.448 = 94% of Gross sales
 Gross sales = $\dfrac{17593.48}{.94}$ = $18 716.43

107)

Date	Balance		Months	Weighted value
January	1	7600	2	15 200
March	1	7180	2	14 360
May	1	8870	5	44 350
October	1	8740	3	26 220
		Total:	12	100 130

 Average monthly balance = 100130/12 = $8344.17

108) Total Hours
 $= 11\dfrac{3}{4} + 14\dfrac{13}{20} + 22\dfrac{4}{5}$
 = 11.75 + 14.65 + 22.80
 = 49.20
 Total cost of labor = 49.20 * 18.00 = $885.60

109) 3140/(2 + 0.35 * 0.2123288) = 3140/(2 + 0.0743151) = 2910/2.074315068 = 1513.753

110) E

111) 0.035 * 100 = 3.5%

112) B

113) a) Total Residential property tax = 0.9(45 000 000) = $40 500 000

 b) Mill rate = $\dfrac{40500000}{900000000}$(1000) = 45

 c) Property tax = 235000$\dfrac{45}{1000}$ = $10 575.00

114) Base salary = 12 × 40 × 4 = $1920
 Commission earned in August = 2% × 75000 = $1500
 Total pay for August = $1920 + $1500 + $1000 = $4420

115)

Number of items		Unit price		Weighted value
8	×	$13.00	=	104.00
4	×	$12.00	=	48.00
15	×	$10.00	=	150.00
10	×	$10.50	=	105.00
Total: 37				407.00

 Average price was 407/37 = $11.00

Answer Key
Testname: CH01

116) Gross sales   = $34250.00
     Less: returns   =   1055.00
     Net sales   = $33195.00
     Commission: = .035 × 15000.00   = $525.00
                   = .07 × 6000.00   =   420.00
                   = .09 × 12195.00   =   1097.55
     Total commission   = $2042.55

117) D

118) Gross earnings   =   937.50
     Less: base salary =   664.00
     Commission: 273.50

     Commission sales = $\frac{273.50}{.0675}$ = 4051.85

     Sales for week = $(7800 + 4051.85) = $11 851.85

119) Total hours   =   45.5
     Regular hours   =   40.00
     Overtime hours   =   5.5
     5.5 overtime hours are equivalent to 5.5 × 1.5 = 8.25 regular hours.

     Hourly rate of pay = $\frac{711.20}{48.25}$ = $14.74

120) C

121) B

122) Gross earnings = 698.10
     Regular earnings = 35 × 15.60 = 546.00
     Overtime pay = 698.10 - 546.00 = 152.10

     Overtime hours = $\frac{152.10}{15.60 × 15}$ = 6.5 hours

     Total number of hours worked = 35 + 6.5 = 41.5 hours

123) Total cost in London
     Retail price   = $855.00
     HST = 13% of $855.00 = 0.13(855) $111.15
        Total cost in London   = $966.15

     Total cost in Lethbridge
     Retail price   = $855.00
     GST = 5% of $855.00 = 0.05(855) $42.75
     PST   nil
        Total cost in Lethbridge $897.75
        Difference = PST $68.40

124)

Quantity	Description	Unit Price	Total $
88	Alpha	$0.37	32.56
65	Bravo	$96\frac{4}{5}$ ¢	62.92
73	Charlie	$0.675	49.275
46	Delta	$1.44	66.24

125) Total Revenue = 195432 + 24732 = $220 164

Total Costs = 19785 + 36000 + 9767 + 21873 = $87 425

Net Revenue = 220164 - 87425 = $132 739

GST remitted = $6636.95

126) B

127)
January 1 - May 31:	35000 × 5 =	175000
June 1 - July 31:	30000 × 2 =	60000
August 1 - October 31:	28100 × 3 =	84300
November 1 - December 31:	$34100 \times \dfrac{2}{12}$ =	68200
Total		387500

Average monthly investment = $\dfrac{387500}{12}$ = $32 291.67

128) 5 $*$ 7 = 35

129) Total hours = 10.5 + 7.5 + 11 + 13 + 9.75 = 51.75

Regular weekly earnings = 36 × $11.70 = $421.20

Overtime earnings = (51.75 - 36) × $11.70 × 1.5 = $276.41

Gross = Regular time + Overtime = $421.20 + $276.41 = $697.61

130) a)
Regular earnings = 40 × 11.20	=	448.00
Overtime pay = 4 × 11.20 × 1.5	=	67.20
Gross earnings	=	$515.20

b) Overtime premium = 4 × 11.20 × 0.5 = $22.40

131) 211.36%

132)
Total value			$5730.00
GST	5% of $5730.00	$286.50	
Manitoba PST	7% of 5730.00	401.10	687.60
Total purchase price			$6417.60

133) D

134) 8 + 12 = 20

135) B

136) 455%

137)
Method A	Regular hours = 37.5 × 17.60	=	660.00
	Overtime pay = 5.25 × 17.60 × 1.50	=	138.60
	5 × 17.60 × 2	=	176.00
	Gross earnings	=	$974.60
Method B	At regular rate: 47.75 × 17.60	=	840.40
	Overtime premium: 5.25 × 17.60 × 0.50	=	46.20
	Overtime premium 5 × 17.60 × 1	=	88.00
	Gross earnings	=	$974.60

138) Net sales = 0.895 × 7880.00 = 7052.60

Commission rate = $\dfrac{926.59}{7052.60}$ = 13.14%

139)

Course	Credits	GPV	Credits × GPV
English	2	2.7	5.4
French	2	3.0	6.0
Math	3	4.0	12.0
Physics	3	4.0	12.0
Chemistry	3	3.7	11.1
Social Science	1	3.3	3.3
Arts	1	2.0	2.0
Total	15		51.8

Grade Point Average = $\dfrac{52}{15}$ = 3.45

140) a)   Quiz Average = (80 + 90 + 80 + 90 + 80 + 50 + 80 + 70)/8 = 77.5%
      b)   Average course grade = [(77.5) 20 + (65)15 + (78)15 + (72)50] / (20 + 15 + 15 + 50)
                       = (1350 + 2145 + 3600)/100 = 70.95%

141) Property tax = $32500\left[\dfrac{21.368}{1000}\right]$ = \$6950.45

142) 74 × 1.35   =   99.90

$90 \times 0.16\dfrac{1}{3}$ =   14.70

70 × .885   =   61.95
58 × 1.35   =   78.30
Total   \$254.85

143) $\dfrac{17}{50}$

144) Gross sales   =   \$14660.00
      Less: returns   =   331.20
      Net sales   =   14328.80
      Gross commission = 14328.80 × .1075 =   1540.35
      Less: drawings   820.00
      Amount due   \$720.35

145) 77 × 0.65   =   \$50.05

$208 \times 0.83\dfrac{1}{4}$ =   173.16

621 × 1.19   =   738.99
414 × 1.95   =   807.30
                    \$1769.50

146) 125 ∗ (6 + 0.35 ∗ 0.2094395) = 125 ∗ (6 + 0.0733038) = 125 ∗ (6.0733038) = 759.163

147) a)   Salary   = \$350.00
          Commission = .145 ∗ 2480.00   = \$359.60
             Gross earnings   = \$709.60

      b)   Salary   = \$350.00
          Commission = .145 ∗ 3780.00   = \$548.10
             Gross earnings   = \$898.10

148) a) Semimonthly pay = $1023.40
         Yearly salary = $24 561.60
         Weekly gross pay = 24561.60 ÷ 52 = $472.34
         Hourly rate = 472.34 ÷ 40 = $11.81
     b) Gross pay   =   1390.47
         Regular pay   =   - 1023.40
         Overtime pay   =   367.07
         Number of overtime hours = (367.07 ÷ 1.5) ÷ 11.81 = 20.72 hrs.