

# Quiz 4

Show all your work

Name: \_\_\_\_\_  
Number: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Score: \_\_\_\_/18

**Problem 1:** Answer the questions. Write out steps for each; provide a two-decimal place accuracy when appropriate. One mark per part except two marks for the last part.

- a. Convert the fraction *two and seven tenths* into a percent.

$$2\frac{7}{10} = 2.7 = 270\%$$

270.0%

- b. Find 7% of 650.

$$0.07 \times 650 = 45.5$$

45.5

- c. Janette wants to share 25 gummy bears out of a Haribo bag of 120 with her friends.

What percentage of her bag of gummy bears is left for herself?

$$\frac{25}{120} = 0.20833 = 20.833\%, \text{ so what's left is } 1 - 0.2083 \text{ or } 0.79166.$$

79.17%

- d. If Hana finds in her drawer 30% of her pens are whiteboard pens, and she counts 18 whiteboard pens in total, how many pens does she have in her drawer?

$$\text{If } 0.3x = 18, \text{ then } x = \frac{18}{0.3} = 60$$

60 pens

- e. Brian bought a pair of hiking boots for \$248.94, including tax. Suppose BC has a 12% combined tax, find the ticket price of Brian's hiking boots before tax.

$$\text{Say the price before taxes is } \$x. \text{ Then } 1.12x = 248.94, \text{ so } x = \frac{248.94}{1.12} = 222.27$$

\$222.27

Score: /5

**Problem 2:** David's family plans to attend *Die Fledermaus* this fall at the QE theatre. For the family dinner before the concert, David's grandmother budgets \$300, to include food cost, taxes, and a 15% tip. What is she going to pay for taxes and tip from the \$300

budgeted amount? Assume a 12% service tax.

\$63.78

Since there is no sales tax on tips, if the cost of the food is  $x$ , then the total cost is  $x + 0.12x + 0.15x = 1.27x$ . Therefore  $1.27x = \$300$ , so  $x = \frac{\$300}{1.27} = \$236.22$ . The taxes and tip then are  $\$300 - x = \$300 - \$236.22 = \$63.78$ .

Score: /3

/8

**Problem 3:** Brian's grandmother is offered by her bank three options for a \$9000 guaranteed investment certificate (GIC):

- a. 4.6 % compounded monthly;
- b. 4.65 % compounded annually; or
- c. 4.59 % compounded weekly. (Use 52 weeks per year.)

Compute the interest after one year in each case and decide which option earns Janette's grandmother the most.

- a.  $\$9000\left(1 + \frac{0.046}{12}\right)^{12} = \$9422.84$ , so the interest is \$422.84.
- b.  $\$9000 \times 0.0465 = \$418.50$
- c.  $\$9000\left(1 + \frac{0.0459}{52}\right)^{52} = \$9422.54$ , so the interest is \$422.54.

Hence the 4.59 % compounded weekly (option c) is best.

Score: /5

**Problem 4:** David's friend, Tom, purchased a yacht and financed \$75 000 at \$3200 per month for 30 months. Assuming the add-on interest method, what was the amount of interest paid over 30 months? Find the annual interest rate charged on the loan.

Tom paid a total of  $30 \times \$3200 = \$96\,000$ . Since Tom borrowed \$75 000, the total interest paid was \$21 000.  
To find the annual interest rate,  $21\,000 \div 75\,000 \div 2.5 \approx 0.112$ , so around 11 %.

Score: /3

**Problem 5:** If *Canadian Trust* visa card charges 20.9 % on unpaid balance, how much would it cost in finance charge to leave \$687 unpaid past the due date for 30 days? Hint: Credit card companies use 365 days a year. For the sake of simplicity, use simple interest.

$$\$687 \times \frac{0.209}{365} \times 30 \approx \$11.80$$

Score: /2