

# Quiz Four

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 *three and two fifths* into a percent.

$$3\frac{2}{5} = 3.4 = 340\%$$

340.0%

- b. Find 6% of 560.

$$0.06 \times 560 = 33.6$$

33.6

- c. Janette wants to share 20 gummy bears out of a Haribo bag of 125 with her friends.

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

$$\frac{20}{125} = 0.1616\%, \text{ so what's left is } 1 - 0.16 \text{ or } 0.84.$$

84%

- d. If Hana finds in her drawer 25% of her pens are whiteboard pens, and she counts 14 whiteboard pens in total, how many pens does she have in her drawer?

$$\text{If } 0.25x = 14, \text{ then } x = \frac{14}{0.25} = 56$$

56 pens

- e. Brian bought a pair of hiking boots for \$297.86, including tax. Suppose BC has a 12% combined tax, find the ticket price of Brian's hiking boots before tax.

$$\text{Say the price before taxes is } \$x. \text{ Then } 1.12x = 297.86, \text{ so } x = \frac{297.86}{1.12} = 265.95$$

\$265.95

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 \$400, to include food cost, taxes, and a 15% tip. What is she going to pay for taxes and tip from the \$400

budgeted amount? Assume a 12% service tax.

\$85.04

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  $1.27x = \$400$ , so  $x = \frac{\$400}{1.27} = \$314.96$ . The taxes and tip then are  $\$400 - x = \$400 - \$314.96 = \$85.04$ .

Score: /3

/8

**Problem 3:** Brian's grandmother is offered by her bank three options for a \$8000 guaranteed investment certificate (GIC):

- a. 4.7% compounded monthly;
- b. 4.75% compounded annually; or
- c. 4.69% 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.  $\$8000\left(1 + \frac{0.047}{12}\right)^{12} \approx \$8384.21$ , so the interest is \$384.21.
- b.  $\$8000 \times 0.0475 = \$380.00$
- c.  $\$8000\left(1 + \frac{0.0469}{52}\right)^{52} \approx \$8383.96$ , so the interest is \$383.96.

Hence the 4.7% compounded weekly (option a) is best.

Score: /5

**Problem 4:** David's friend, Tom, purchased a yacht and financed \$65 000 at \$2900 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  $30 \times \$2900 = \$87\,000$ . Since Tom borrowed \$65 000, the total interest paid was \$22 000.

To find the annual interest rate,  $22\,000 \div 65\,000 \div 2.5 \approx 0.1354$ , so around 13.5%.

Score: /3

**Problem 5:** If *Canadian Trust* visa card charges 21.9% on unpaid balance, how much would it cost in finance charge to leave \$345.80 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.

$$\$345.80 \times \frac{0.219}{365} \times 30 \approx \$6.22$$

Score: /2