

Show You Know

- If $62\frac{1}{2}\%$ of the 120 employees at a sporting goods company use public transit to get to work, how many people is this?
- A company donates 0.8% of its profits to a children's charity each year. If their profits this year were \$1 200 000, how much will they donate?
- A company produces 3200 of a particular item this year. Next year they plan to make 145% as many. How many will that be?



Connect and Reflect

Key Ideas

- You can use mental math strategies such as halving, doubling, and dividing by ten to find the percents of some numbers.
- To calculate the percent of a number, write the percent as a decimal and then multiply by the number.

Practise

For help with #1 to #3, refer to Example 1 on page 275.

- Use mental math to determine each value.

- 300% of 2000
- $2\frac{1}{4}\%$ of 60
- 0.1% of 40

- Use mental math to find the following.

- 0.2% of \$60
- 250% of \$400
- $10\frac{1}{2}\%$ of \$3100

- The main elements that make up the human body are shown in the table. Use mental math to determine the amount of each element that is present in a 60-kg person.

| Element | Percent of Body |
|----------------|-----------------|
| Oxygen | 65.0 |
| Carbon | 18.5 |
| Hydrogen | 9.5 |
| Calcium | 1.5 |
| Phosphorus | 1.0 |
| Potassium | 0.4 |
| Sulfur | 0.3 |
| Sodium | 0.2 |
| Chlorine | 0.2 |
| Magnesium | 0.1 |
| Other elements | less than 1.0 |

For help with #4 to #6, refer to Example 2 on page 276.

4. Determine the percent of each number.
Give your answer to the nearest hundredth.

- a) 0.6% of 325
- b) $15\frac{1}{4}\%$ of 950
- c) 175% of \$125.50

5. What is the percent of each number?

- a) $\frac{5}{8}\%$ of 520
- b) 75.4% of 200
- c) 243% of \$76.50

6. The manager of a store finds that, on average, 32.5% of customers bring their own bags. Determine how many people this might be on a day when 4000 customers visit the store.



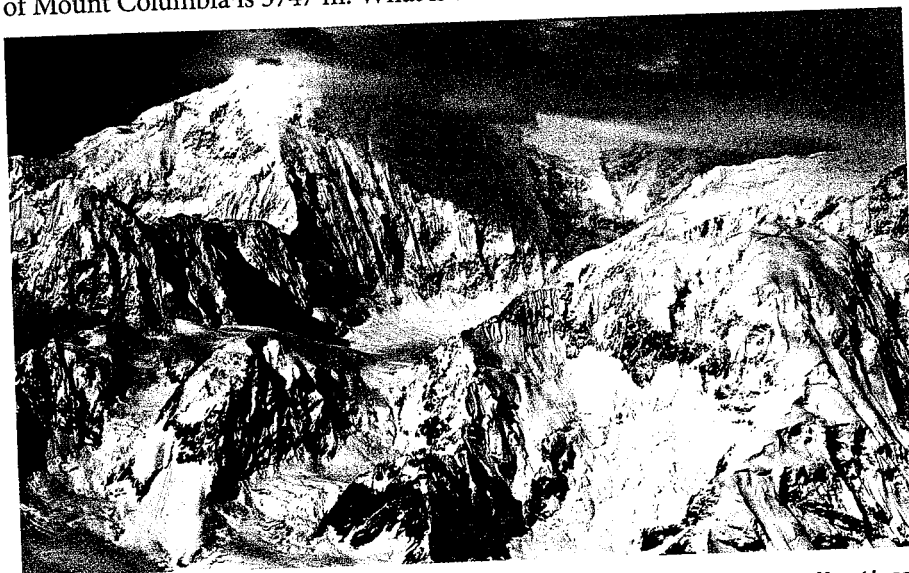
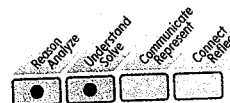
Apply

7. Two hundred tickets are being sold for a school draw.

- a) If you buy one ticket, what is your chance of winning, as a percent?
- b) How many tickets would you need to purchase to have a 2.5% chance of winning?

8. The original price of a jacket was \$86. A store manager marked the price down by 37.5%. By how much was the price reduced?

9. The highest point in Canada is Mount Logan, Yukon. Mount Logan is 159% as high as the highest point in Alberta, which is Mount Columbia. The elevation of Mount Columbia is 3747 m. What is the elevation of Mount Logan?



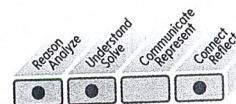
Mount Logan

10. The volume of solid ice is about 110% the volume of liquid water. What is the volume of ice created when 750 mL of water freezes?

11. A manufacturer of electric hybrid vehicles claims its vehicle will travel 200% as far on a full tank of gas as the regular model of the same vehicle. If the regular vehicle travels an average of 550 km on a full tank, how far will the hybrid go?

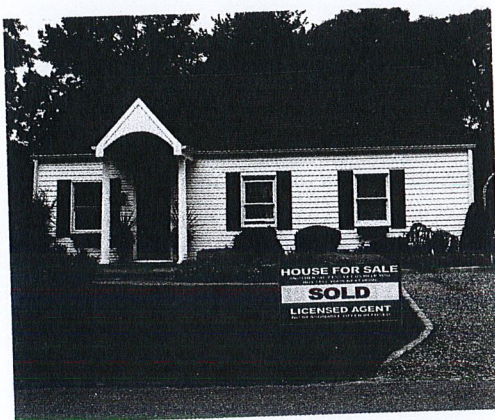
12. **Competency Check**

- a) The expression “one in a million” means that a person is unique or very special. What percent does this represent?
- b) If you were literally “one in a million,” how could you use mental math to determine approximately how many other people are exactly like you in
- i) all of Canada (population in 2016 is about 36 million)
 - ii) the entire world (population in 2016 is about 7.5 billion)



13. A real estate agent receives 6.5% commission on the first \$100 000 of a house's selling price, and 3.5% on the remaining amount.

- a) What does *commission* mean?
- b) If a house sells for \$845 000, how much commission does the real estate agent make?



14. Answer and explain your reasoning for the following statement: 12.5% of 500 is the same as 25% of what number?

Extend

15. Chelsea got a 6.4% bonus on her paycheque this month. If her total paycheque was \$8171.52, what would her pay have been without the bonus?

16. If Laina earns 40% more than Caleb, what percent less does Caleb earn than Laina?

17. Ming took 16 shots and has a 37.5% scoring average after her first basketball game this season. She wants to raise her overall scoring average to 60% by the end of the next four games. If she takes an average of 24 shots each game, how many baskets does she need to make in the next four games to achieve this?