

## Unitary method and percentages

**QUESTION 1** Work out the following.

- a If 20% of a number is 68, what is the number? \_\_\_\_\_
- b If 25% of a number is 230, what is the number? \_\_\_\_\_
- c Find the total cost if 30% of it is \$720. \_\_\_\_\_
- d If 32% of a number is 800, what is the number? \_\_\_\_\_
- e If 120% of a number is 80, what is the number? \_\_\_\_\_

**QUESTION 2** Use the unitary method to solve the following.

- a 40% of a number is 54. What is the number? \_\_\_\_\_
- b 50% of a number is 360. What is the number? \_\_\_\_\_
- c 35% of a number is 28. What is the number? \_\_\_\_\_
- d 68% of a number is 152. What is the number? \_\_\_\_\_
- e 15% of a number is 69. What is the number? \_\_\_\_\_

**QUESTION 3** Find 100% of the number if a part of it is given.

- |                            |   |
|----------------------------|---|
| a 2% is 20; 100% = _____   | b 10% is 98; 100% = _____                 |
| c 5% is 30; 100% = _____   | d 15% is 80; 100% = _____                 |
| e 30% is 15; 100% = _____  | f $12\frac{1}{2}\%$ is 960; 100% = _____  |
| g 45% is 28; 100% = _____  | h $33\frac{1}{3}\%$ is 1920; 100% = _____ |
| i 60% is 300; 100% = _____ | j 75% is 680; 100% = _____                |
| k 8% is 240; 100% = _____  | l 40% is 75; 100% = _____                 |

**QUESTION 4** Find answers to the following.

- a John spends \$55 per week on food. If he spends 20% of his income on food, what is his weekly income?  
\_\_\_\_\_
- b I spent 48% of my allowance on a movie which cost me \$15.50. How much is my allowance?  
\_\_\_\_\_
- c If  $66\frac{2}{3}\%$  of a number is 27, find the number.  
\_\_\_\_\_
- d Lisa's income increased by 4%. If her income rose by \$830, find her previous income.  
\_\_\_\_\_

- 1 There are 40 students in a class and 30% are absent. How many are present?
- 2 Find 8% of 2 kg, giving the answer in grams.
- 3 If 7% of a number is 133, what is the number?
- 4 Sarah pays 20% of her total weekly income in tax. If she receives \$420 income per week, find:  
Sarah's total weekly tax?
- 5 How much money Sarah receives after the tax has been taken out?
- 6 Increase \$800 by 8% and then decrease the result by 8%.
- 7 Find the simple interest on \$350 for 2 years at a rate of 9% p.a.
- 8 A book was bought for \$2.25 and sold for \$2.40. What is the gain percent?
- 9 Add 125% of \$84 to 21% of \$200.
- 10 21 out of 35 students play tennis. What percentage of the class play tennis?
- 11 I spend 20% of my money to buy a car for \$8600. How much did I have before buying the car?
- 12 A block of land bought for \$20 600 increased in value 12%. What is the new value?
- 13 If after a  $12\frac{1}{2}\%$  pay rise I receive \$480, how much did I earn before the pay rise?
- 14 If 40% of a number is 120, find the number.
- 15 Find the simple interest on \$3000 for 2 years at  $6\frac{1}{4}\%$  p.a.

## Problem solving with percentages



# Percentages

## TOPIC TEST

## PART A

- Instructions**
- This part consists of 15 multiple choice questions
  - Fill in only ONE CIRCLE for each question
  - Each question is worth 1 mark
  - Calculators may be used

**Time allowed: 15 minutes**

**Total marks = 15**

- 1** As a decimal  $4\frac{1}{2}\%$  equals
- (A) 0.42                      (B) 0.45                      (C) 0.042                      (D) 0.045
- 2** 15% of 1.5 tonnes equals
- (A) 22.5 kg                      (B) 100 kg                      (C) 225 kg                      (D) 1000 kg
- 3** A toy was reduced in price from \$40 to \$36. What is the percentage discount?
- (A) 4%                      (B) 10%                      (C) 11%                      (D) 96%
- 4** What would John pay for a CD player that sells for \$550 but is discounted by 15%?
- (A) \$82.50                      (B) \$467.50                      (C) \$535                      (D) \$632.50
- 5**  $P\%$  of  $\$d$  is
- (A)  $\$Pd$                       (B)  $\$\left(\frac{P+d}{100}\right)$                       (C)  $\$100Pd$                       (D)  $\$\frac{Pd}{100}$
- 6** To increase 80 by 13% you evaluate
- (A)  $80 + 1.13$                       (B)  $80 \times 0.13$                       (C)  $80 \times 1.13$                       (D)  $80 + \frac{13}{100}$
- 7**  $\frac{1}{3}$  expressed as a percentage is
- (A)  $\frac{1}{3}\%$                       (B) 3%                      (C) 30%                      (D) none of these
- 8** Express 7% as a decimal.
- (A) 7.0                      (B) 0.7                      (C) 0.07                      (D) none of these
- 9** Find 40% of 120 km
- (A) 3 km                      (B) 4.8 km                      (C) 30 km                      (D) 48 km

Marks

1

1

1

1

1

1

1

1

1

- 10 Increase 250 by 6%
- (A) 265                      (B) 256                      (C) 400                      (D) none of these
- 11 In a test a student gets 10 questions wrong out of 25. What percentage of questions are correct?
- (A) 15%                      (B) 40%                      (C) 60%                      (D) 90%
- 12 After 20% of a bill is paid, \$60 still remains to be paid. How much was the total bill?
- (A) \$12                      (B) \$63                      (C) \$72                      (D) \$75
- 13  $\frac{8}{20}$  equals
- (A) 8%                      (B) 16%                      (C) 40%                      (D) 80%
- 14 Which of the following marks is better than 50%?
- (A) 9 out of 25              (B) 40 out of 70              (C) 50 out of 200              (D) 55 out of 120
- 15 A concrete mixture contains 1 part cement, 2 parts sand and 2 parts gravel. What percentage of the mixture is sand?
- (A) 20%                      (B)  $33\frac{1}{3}\%$                       (C) 40%                      (D)  $66\frac{2}{3}\%$

1

1

1

1

1

1

Total marks achieved for PART A

15