

UNIT

7

Percentage

Revision Notes

1. **Per cent** means 'out of 100'.
2. To convert a percentage to a fraction or a decimal, **divide** the percentage by 100.

E.g. $5\% = \frac{5}{100}$
 $= \frac{1}{20}$
 $= 0.05$

3. To convert a fraction or a decimal to a percentage, **multiply** the fraction or decimal by 100%.

E.g. (a) $\frac{2}{5} = \frac{2}{5} \times 100\%$
 $= 40\%$

(b) $0.3 = 0.3 \times 100\%$
 $= 30\%$

4. To express **Quantity 1** as a percentage of **Quantity 2**,

$$\frac{\text{Quantity 1}}{\text{Quantity 2}} \times 100\%$$

Note: Both Quantity 1 and Quantity 2 must be in the **same units**.

5. To find the percentage of a quantity, **change** the percentage to a fraction, then multiply the fraction with the quantity.
6. To find the **percentage change** between two values,

$$\frac{\text{Change in value}}{\text{Original value}} \times 100\%$$

Revision Exercise 7

1. Express the following percentages as fractions in their simplest form.

(a) 6%

(b) 150%

(c) 42%

(d) $50\frac{1}{2}\%$

(e) 25.2%

(f) $12\frac{1}{4}\%$

2. Express the following percentages as decimals.

(a) 21%

(b) 205%

(c) 32.8%

(d) $40\frac{1}{5}\%$

3. Express the following as percentages.

(a) $\frac{3}{4}$

(b) $1\frac{1}{2}$

(c) $\frac{3}{8}$

(d) 1.03

(e) 0.2158

(f) 0.65

4. Evaluate the following.

(a) 6 as a percentage of 20.

(b) \$1.20 as a percentage of \$5.

(c) 60 m as a percentage of 2.4 km.

(d) 850 ml as a percentage of 2 l.

(e) 40 min as a percentage of half an hour.

(f) 500 mg as a percentage of 0.002 kg.

5. Evaluate the following.

(a) 10% of 800

(b) $20\frac{1}{2}\%$ of 40

(c) 6% of \$12

(d) 36% of 5 kg

(e) 75% of 3 km 500 m

(f) 60% of 2 h

6. Find the percentage increase from

(a) 60 to 80,

(b) 50¢ to \$2,

(c) 80 cm to 2 m,

(d) 2 l to 2.5 l.

7. Find the percentage decrease from

(a) 100 to 70

(b) 5 kg to 3.5 kg

(c) \$10 to \$6.50

(d) 3 h to 2 h 20 min

8. Calculate the 7% GST on a book costing \$5.00.

9. When a number is increased by 12%, it becomes 3360. Find the number.

10. In a carton of 90 apples, 6 were rotten. What percentage of the apples were in good condition?
11. After a 8% pay-cut, Mr Ang's pay became \$2208. Find his original pay.
12. Fei Fei's mass decreased from 85 kg to 78 kg. Calculate the percentage decrease in her mass.

13. In a class, 7.5% of the students failed their Mathematics test. If 37 students passed the test, how many students were there in the class?

14. An instant tea powder mixture consists of 60% tea, 25% milk and the rest sugar. Find

- (a) the fraction of sugar in the mixture.
- (b) the mass of milk if the mass of the tea is 18 g.

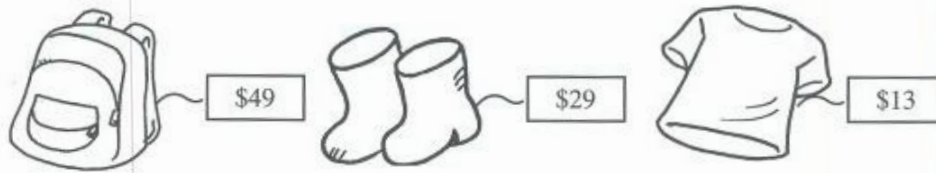
15. In an examination, Meiyi obtained the following results.

English	78%
Chinese	82%
Mathematics	69%
Science	65%
Social Studies	59%
Technical Studies	71%
Art	52%

Calculate her average percentage score.

16. An insurance agent earned 35% commission on the first-year premium he collected. If he earned a commission of \$25 900, how much first-year premium did he collect?

17. During a sale, a shop offered a 20% discount for all its goods. Miss Chen bought the following items with their original price tags.



How much did she spend?

18. Mr Moh earns \$3200 a month. He gives $\frac{1}{4}$ of his salary to his wife and spends 65% of the remainder on his daily expenses. If he saves the rest of his salary, how much does Mr Moh save a month?

19. Arrange the following in ascending order.

1%, 100, 1.1, 120%, $\frac{1}{10}$

20. Arrange the following in descending order.

$\frac{1}{3}$ of \$63, 30% of \$72, 0.33 of \$60