

UNIT 7 *Ratio and Proportion*

Overhead Slides

Overhead Slides

- 7.1 Simplifying Ratios
- 7.2 Writing Ratios in the Form $1 : n$
- 7.3 Map Ratios
- 7.4 Direct Proportion
- 7.5 Proportional Division
- 7.6 Currency Conversion
- 7.7 Distance Conversion
- 7.8 Inverse Proportion

OS 7.1

Simplifying Ratios

Simplify the following ratios:

$$(a) \quad 4 : 8 \quad =$$

$$(b) \quad 5 : 20 \quad =$$

$$(c) \quad 9 : 45 \quad =$$

$$(d) \quad 25 : 40 \quad =$$

$$(e) \quad 8 : 36 \quad =$$

$$(f) \quad 6 : 21 \quad =$$

$$(g) \quad 11 : 44 \quad =$$

OS 7.2*Writing Ratios in the Form $1 : n$*

Write the ratios below in the form $1 : n$.

(a) $2 : 10 =$

(b) $5 : 70 =$

(c) $5 : 9 =$

(d) $10 : 11 =$

(e) $10 : 42 =$

(f) $5 : 3 =$

(g) $4 : 3 =$

OS 7.3

Map Ratios

A map of Europe is drawn with a scale of 1 : 200 000.

(A) Calculate the actual distance, in km, that the following lengths on the map represent:

(a) 1 cm,

(b) 20 cm.

(B) The actual distance between two cities, Budapest and Warsaw, is 600 km. What is the distance between these two cities on the map?

OS 7.4*Direct Proportion*

1. If 20 calculators cost £170, calculate the cost of 7 calculators.

20 calculators cost £170

1 calculator costs

7 calculators cost

2. If 500 balls cost £60, calculate the cost of 800 balls.

500 balls cost £60

1 ball costs

800 balls cost

n balls cost

OS 7.5*Proportional Division*

(A) Divide £70 between Josh and Mary in the ratio 9 : 5.

$$9 + 5 = \boxed{}$$

So divide £70 into $\boxed{}$ equal parts.

$$£70 \div \boxed{} = \boxed{}$$

$$\text{Joshua's share is } 9 \times \boxed{} = \boxed{}$$

$$\text{Mary's share is } 5 \times \boxed{} = \boxed{}$$

(B) Hannah, Ben and Emma have 90 sweets. They decide to divide them in the ratio of their ages, which are 2 years, 7 years and 9 years.

$$2 + 7 + 9 = \boxed{}$$

So divide 90 into $\boxed{}$ equal parts.

$$90 \div \boxed{} = \boxed{}$$

$$\text{Hannah's share is } 2 \times \boxed{} = \boxed{}$$

$$\text{Ben's share is } 7 \times \boxed{} = \boxed{}$$

$$\text{Emma's share is } 9 \times \boxed{} = \boxed{}$$

OS 7.6

Currency Conversion

If one pound sterling (£1) is worth 12 Hong Kong dollars (HK\$), convert:

(a) £10 to HK\$,

(b) £18 to HK\$,

(c) 240 HK\$ to £,

(d) 114 HK\$ to £.

OS 7.7

Distance Conversion

If one yard is approximately equal to 90 cm, convert:

(a) 5 yards to cm,

(b) 17 yards to cm,

(c) 630 cm to yards,

(d) 558 cm to yards.

OS 7.8*Inverse Proportion*

- (A) Joshua runs home from school, a distance of 8 km.
Complete the table below to show the times he takes
if he runs at different speeds.

<i>Speed</i>	<i>Time</i>
8 km/h	
6 km/h	
5 km/h	
4 km/h	

- (B) At a warehouse, one person packs 15 orders in
one hour. How long does it take:
- (a) 4 people to pack 120 orders,
- (b) 6 people to pack 30 orders,
- (c) 10 people to pack 1500 orders ?