EXERCISE 9.06

1 Jane got a mark of 28 out of 50 in a test. Express this as a percentage.

2 Paul got 72 out of 80 in an exam. What is this as a percentage?

3 A retailer sold a washing machine for $800, and received a commission of $40. What percentage commission is this?

4 Write each of the first quantities as a percentage of the second.
   a 20 mL, 80 mL
   b 18 s, 90 s
   c 544 ha, 640 ha
   d 18 m, 600 m
   e 304 cm², 950 cm²
   f 6 g, 80 g

5 In a referendum, 34 people out of 50 voted 'No'. What percentage voted 'No'?

6 Wayne was cycling the 75 km distance from Gore to Balclutha. He got blisters after 45 km and had to stop. What percentage of the distance had he completed?

7 Monica tests a coin to see if it is 'fair'. She tosses it 80 times. If it is 'fair' it should land heads up about half the time.
   a The coin lands with heads up 32 times. What is this percentage?
   b For a fair coin, what should this percentage be, approximately?

8 In a basket of mixed berries there are 33 raspberries and 27 blackberries. What percentage of the berries are raspberries?

9 A speed camera takes photos of 16 cars out of 200 passing by. Calculate the percentage of cars that are photographed.

10 What percentage of $90 is $21.60?

11 What percentage of 14 km is 5.88 km?

12 Leanne borrowed $750 for a year and was charged interest of $45. Calculate the interest as a percentage of the amount borrowed.

13 There are 1280 students at our school. Of these students, 1088 are in a school sports team. What percentage of students at our school are in a school sports team?

14 The Rhodes family are driving from Picton to Invercargill.

Picton

434 km

Ashburton

498 km

Invercargill

a What is the total distance?

b They stop overnight at Ashburton. What percentage of the journey have they covered so far? Give your answer to the nearest whole number.

c From Ashburton, how many more kilometres do they have to drive to be at the half-way point for the journey?

15 In the 1st term Science test, Kaitoa's mark was 24 out of 40. In the 2nd term Science test it was 17 out of 25. Has his result improved? Explain using percentages.

16 Mr and Mrs Taylor have eight children altogether: two girls and six boys.

a What percentage of the children are boys?

b What percentage of the children are girls?

c What percentage of the *family* are males?

d What percentage of the *family* are females?

When calculating percentages to compare quantities, the units must be made the same.

17 In each case write the first quantity as a percentage of the second.

a 24 seconds, 1 minute **b** 40 cents, $1

c 65 cents, $5 **d** 18 hours, 1 day

e 60 cm, 2 m **f** 30 seconds, 5 minutes

18 In each case make the units the same first.

a What percentage of 1 day is 6 hours?

b What percentage of 2 km is 500 m?

c What percentage of $10 is 70 cents?

d What percentage is 16 cm of 4 m?

19 The lead in a new propelling pencil was 8 cm long. After it had been used for some time, the lead was 68 mm long. What percentage of lead had been used?

20 This table gives data about flight movements and delays at three New Zealand airports over a certain period.

Airport	Flight movements	Delays
Auckland	11 673	1654
Wellington	14 509	1713
Christchurch	8 612	1025

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Which airport was worst affected by delays? Which airport was least affected? Explain, using percentages.

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