

WA5MNAUN7

Understanding number

Core + Challenge

NAPLAN-style

Introducing Percentages — Marking Key

I can explain that per cent means out of 100, and that 100% is one whole.

For tutors and parents. Award method marks for correct working even if the final answer is wrong.

Marks summary

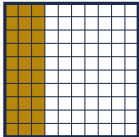
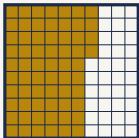
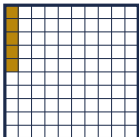
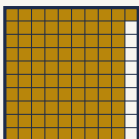
A Warm up: 16 B Practise: 22 C Think it through: 10 D Challenge: 9 **Total: 57**

Gold shading in this key shows what the child should have shaded or drawn. Accept any correct arrangement unless the question fixes it.

A

Warm up answers

/ 16 marks

Q	Answer	Model answer / notes	Marks
1	45%	45 out of 100 squares are shaded.	1
2	8%	8 out of 100 squares are shaded. Not 80%: count the squares.	1
3	70%	70 out of 100 squares are shaded.	1
4	83%	83 out of 100 squares are shaded.	1
5	30 squares	 30% = 30 out of 100. Accept any 30 squares.	1
6	64 squares	 64% = 64 out of 100. Accept any 64 squares.	1
7	5 squares	 5% = 5 out of 100. Accept any 5 squares.	1
8	91 squares	 91% = 91 out of 100. Accept any 91 squares.	1
9	75%	25 squares are shaded, so $100 - 25 = 75$ are not.	1
10	40%	60 squares are shaded, so $100 - 60 = 40$ are not.	1

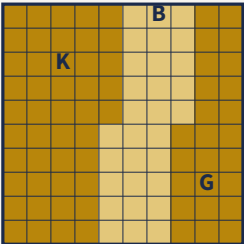
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Q	Answer	Model answer / notes	Marks
11	1%	99 squares are shaded, so $100 - 99 = 1$ are not.	1
12	88%	12 squares are shaded, so $100 - 12 = 88$ are not.	1
13	61%	Per cent means out of 100.	1
14	9%	9 hundredths = 9 out of 100.	1
15	100%	The whole thing is 100%.	1
16	50%	Half of 100 squares is 50 squares.	1

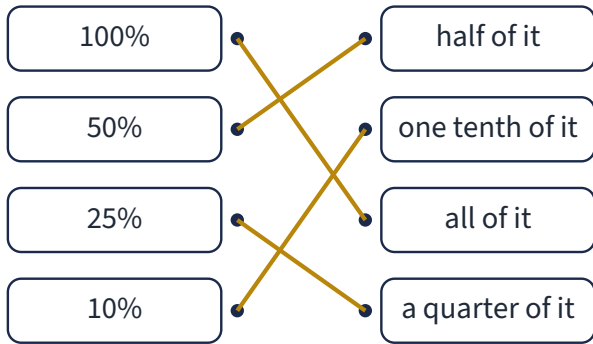
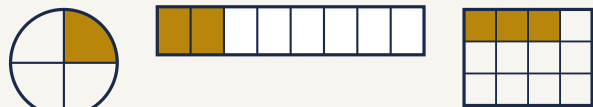
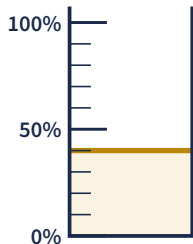
B

Practise *answers and working*

/ 22 marks

Q	Answer	Working / sample response	Marks
1	a) 70% b) 30% c) 5 parts	 c) 5 parts shaded 10 equal parts make 100%, so each part is 10%. a) 7 parts = 70%. b) 3 parts = 30%. c) 50% is half: shade 5 parts. <i>1 mark each part.</i>	3
2	a) 86% b) 91% c) Ben	a) 86 out of 100 = 86%. b) Ben got $100 - 9 = 91$ words right: 91%. c) $91\% > 86\%$, so Ben did better. <i>1 mark each part.</i>	3
3	a) half the price off b) \$18	a) 50% is half, so half of the price is taken off. b) Half of \$36 is \$18, so the shoes cost \$18. <i>1 mark: explains 50% off = half price.</i> <i>1 mark: \$18.</i>	2
4	25%	 Kangaroo paws: 45 squares. Banksias: 30 squares. $45 + 30 = 75$, and $100 - 75 = 25$, so 25% are grevilleas. <i>1 mark: 45 and 30 squares shown differently.</i> <i>1 mark: 75 squares used.</i> <i>1 mark: 25%.</i>	3

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Q	Answer	Working / sample response	Marks
5	See lines	 100% = all of it, 50% = half of it, 25% = a quarter of it, 10% = one tenth of it. <i>2 marks: all four. 1 mark: two or three.</i>	2
6	a) B b) $\frac{1}{100}$	a) ☐ A ☒ B ☐ C ☐ D b) ☐ the whole ☐ 1 ☐ 100 out of 100 ☒ $\frac{1}{100}$ a) Circle the letter B. Count the squares: A = 20, B = 25, C = 30, D = 15. Only B is 25 out of 100. b) $\frac{1}{100}$ is only 1%. The whole, 1 and 100 out of 100 are all 100%. <i>1 mark each.</i>	2
7	6 parts; 40%	 The bar has 10 equal parts, so each part is 10%. Shade 6 parts. $100\% - 60\% = 40\%$ left. <i>1 mark: 6 parts shaded.</i> <i>1 mark: 40%.</i>	2
8	1 part, 2 parts, 3 squares	 The circle has 4 parts: shade 1. The bar has 8 parts: a quarter is 2. The rectangle has 12 squares: a quarter is 3. <i>1 mark each shape. Accept any correct parts.</i>	3
9	Level at 40%; 60%	 Each space is 10%, so shade 4 spaces up from 0% (to 40%). $100\% - 40\% = 60\%$ drunk. <i>1 mark: shaded to 40%.</i> <i>1 mark: 60%.</i>	2

C

Think it through sample answers and criteria

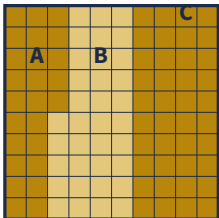
/ 10 marks

Q	Answer	Working / sample response	Marks
1	No, 50%	The grid does not have 100 squares, so 10 squares is not 10%. 10 out of 20 is half of the grid, and half is 50%. <i>1 mark: No / 50%.</i> <i>1 mark: explains per cent means out of 100, or that 10 out of 20 is half.</i>	2
2	False	50% is half of each pizza. Half of a large pizza is more pizza than half of a small pizza, because the wholes are different sizes. <i>1 mark: False.</i> <i>1 mark: explains the wholes are different sizes.</i>	2
3	Sometimes	Always Sometimes Never It works for a strip of 10 equal parts: 5 parts is half. It does not work for a circle in 4 parts ($50\% = 2$ parts) or a 100-grid ($50\% = 50$ squares). <i>1 mark: Sometimes.</i> <i>1 mark: one example where it works and one where it does not.</i>	2
4	5 out of 100	50%, half and $\frac{50}{100}$ all mean 50 out of 100. 5 out of 100 is only 5%. <i>1 mark: 5 out of 100.</i> <i>1 mark: explains the others are all 50 out of 100 (half).</i>	2
5	70%	The whole class is 100%. $100\% - 30\% = 70\%$ do not walk. <i>1 mark: 70%.</i> <i>1 mark: explains the whole class is 100%.</i>	2

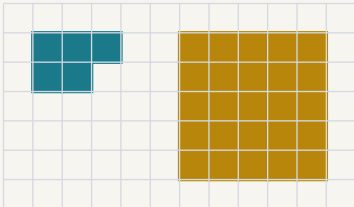
D

Challenge solutions and criteria

/ 9 marks

Q	Answer	Working / sample response	Marks
1	a) 35% b) 40% c) Chloe	 a) Amy paints 25 tiles, so Ben paints $25 + 10 = 35$ tiles = 35%. b) $25\% + 35\% = 60\%$, and $100\% - 60\% = 40\%$. c) Chloe paints 40 tiles, the most. <i>1 mark each part.</i>	3

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Q	Answer	Working / sample response	Marks
2	Shop B, by \$1	Shop A: 50% off means half price. Half of \$30 = \$15. Shop B: \$24 – \$10 = \$14. \$15 – \$14 = \$1, so Shop B is cheaper by \$1. <i>1 mark: \$15.</i> <i>1 mark: \$14.</i> <i>1 mark: Shop B by \$1.</i>	3
3	a) 50 squares b) 25 squares c) any 25 squares	 a) 10% is one tenth, so the whole is $10 \times 5 = 50$ squares. b) 50% is half of 50 = 25 squares. c) Any 25 squares shaded (e.g. 5 by 5), not counting the given 5. <i>1 mark: 50.</i> <i>1 mark: 25.</i> <i>1 mark: 25 squares shaded.</i>	3