

WA6MMGTW2

Two-dimensional space and structures

Core + Challenge

Converting Units of Length — Marking Key

I can measure lengths and convert between mm, cm, m and km, including decimals.

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

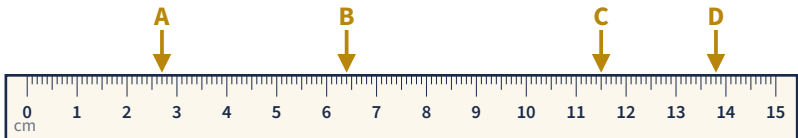
Marks summary

A Warm up: 16 B Practise: 21 C Think it through: 10 D Challenge: 9 **Total: 56**

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	63 mm = 6.3 cm	Starts at 0; ends at 6.3 cm. Length 63 mm = 6.3 cm. Both units needed for the mark. Accept ± 1 mm.	1
2	48 mm = 4.8 cm	Starts at 0; ends at 4.8 cm. Length 48 mm = 4.8 cm. Both units needed for the mark. Accept ± 1 mm.	1
3	54 mm = 5.4 cm	Starts at 2 cm, so subtract: $7.4 - 2$; ends at 7.4 cm. Length 54 mm = 5.4 cm. Both units needed for the mark. Accept ± 1 mm.	1
4	57 mm = 5.7 cm	Starts at 1.3 cm, so subtract: $7 - 1.3$; ends at 7 cm. Length 57 mm = 5.7 cm. Both units needed for the mark. Accept ± 1 mm.	1
5	A at 27 mm	 2.7 cm = 27 mm: 2 cm and 7 small marks. All four arrows are shown on the ruler. Accept ± 1 mm.	1
6	B at 64 mm (6.4 cm)	64 mm = 6.4 cm. Accept ± 1 mm.	1
7	C at 115 mm (11.5 cm)	0.115 m = 11.5 cm = 115 mm, half-way between 11 and 12. Accept ± 1 mm.	1
8	D at 138 mm (13.8 cm)	13 cm 8 mm = 13.8 cm = 138 mm. Accept ± 1 mm.	1
9	360 cm	1 m = 100 cm, so $3.6 \times 100 = 360$.	1
10	4.5 m	100 cm = 1 m, so $450 \div 100 = 4.5$.	1
11	2350 m	1 km = 1000 m, so $2.35 \times 1000 = 2350$.	1
12	8 cm	10 mm = 1 cm, so $80 \div 10 = 8$.	1
13	7 mm	1 cm = 10 mm, so $0.7 \times 10 = 7$.	1

Converting Units of Length · WA6MMGTW2

Q	Answer	Model answer / notes	Marks
14	1.25 km	1000 m = 1 km, so $1250 \div 1000 = 1.25$.	1
15	400 mm	1 m = 1000 mm, so $0.4 \times 1000 = 400$.	1
16	6.05 m	5 cm = 0.05 m (not 0.5 m), so 6 m 5 cm = 6.05 m.	1

B

Practise *answers and working*

/ 21 marks

Q	Answer	Working / sample response	Marks
---	--------	---------------------------	-------

- 1
- a) 45 mm
b) 72 mm
c) 60 mm
- a)  45 mm
b)  72 mm
c)  60 mm

a) 4.5 cm = 45 mm. b) 72 mm = 7.2 cm. c) 0.06 m = 6 cm = 60 mm.

1 mark for each line (accept ± 2 mm).

- 2 See table

mm	cm	m
250	25	0.25
1800	180	1.8
3050	305	3.05

Row 1: 25 cm = 250 mm = 0.25 m.

Row 2: 1800 mm = 180 cm = 1.8 m.

Row 3: 3.05 m = 305 cm = 3050 mm.

1 mark for each fully correct row.

- 3 Ben, Chloe, Ava, Eli, Dev

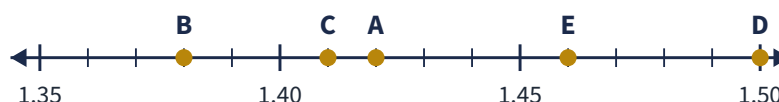
Write every height in metres: Ben 1.38, Chloe 1.41, Ava 1.42, Eli 1.46, Dev 1.50.

Each small step on the line is 0.01 m (1 cm).

1 mark: heights converted (or marked) correctly.

1 mark: all five marked on the line.

1 mark: correct order.



- 4 20.9 km; walks 1500 m

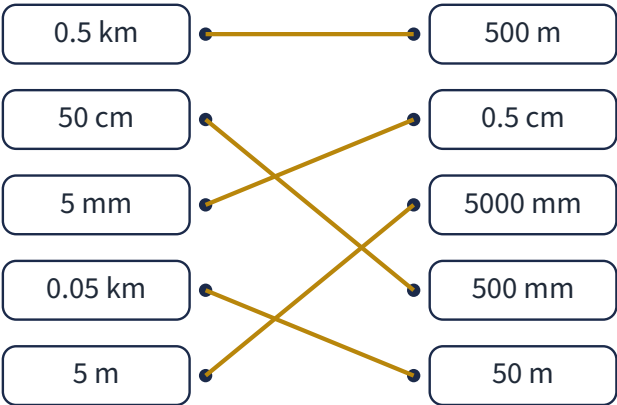
850 m = 0.85 km and 650 m = 0.65 km.

$0.85 + 19.4 + 0.65 = 20.9$ km. Walking: $850 + 650 = 1500$ m.

1 mark: 20.9 km.

1 mark: 1500 m (or 1.5 km).

Converting Units of Length · WA6MMGTW2

Q	Answer	Working / sample response	Marks
5	4.15 km = 4150 m	$12 - 7.85 = 4.15 \text{ km.}$ $4.15 \times 1000 = 4150 \text{ m.}$ <i>1 mark: 4.15 km.</i> <i>1 mark: 4150 m.</i>	2
6	19 mm = 1.9 cm	Ribbon A goes from 1.5 cm to 9.2 cm: $9.2 - 1.5 = 7.7 \text{ mm.}$ Ribbon B is 58 mm. $7.7 - 5.8 = 1.9 \text{ mm} = 1.9 \text{ cm.}$ <i>1 mark: both ribbons measured (7.7 mm and 5.8 mm).</i> <i>1 mark: 1.9 mm = 1.9 cm.</i>	2
7	$0.5 \text{ km} = 500 \text{ m, } 50 \text{ cm} = 500 \text{ mm, } 5 \text{ mm} = 0.5 \text{ cm,}$ $0.05 \text{ km} = 50 \text{ m, } 5 \text{ m} = 5000 \text{ mm}$	 Change each to mm (or m) to compare: $0.5 \text{ km} = 500 \text{ m; } 50 \text{ cm} = 500 \text{ mm; } 5 \text{ mm} = 0.5 \text{ cm; } 0.05 \text{ km} = 50 \text{ m; } 5 \text{ m} = 5000 \text{ mm.}$ <i>2 marks: all five correct. 1 mark: three or four correct.</i>	2
8	6.5 m	$85 \text{ cm} = 0.85 \text{ m.}$ $2.4 + 0.85 + 2.4 + 0.85 = 6.5 \text{ m (or } 2 \times 3.25 = 6.5 \text{ m).}$ <i>1 mark: converts 85 cm to 0.85 m (or works in cm: 650 cm).</i> <i>1 mark: 6.5 m.</i>	2
9	40 pieces	$12.5 \times 8 = 100$, so 8 pieces fit in each metre. $5 \text{ m gives } 5 \times 8 = 40 \text{ pieces (or } 500 \div 12.5 = 40).$ <i>1 mark: 8 pieces per metre or 500 cm.</i> <i>1 mark: 40.</i>	2

C Think it through *sample answers and criteria*

/ 10 marks

Q	Answer	Working / sample response	Marks
1	No, 3.5 m = 350 cm	There are 100 cm in 1 m, so multiply by 100, not 10: $3.5 \times 100 = 350 \text{ cm.}$ 35 cm is shorter than a ruler and a half, but 3.5 m is taller than a door. <i>1 mark: No, 350 cm.</i> <i>1 mark: explains 1 m = 100 cm (multiply by 100).</i>	2
2	True	$0.08 \text{ km} = 0.08 \times 1000 = 80 \text{ m.}$ $750 \text{ cm} = 750 \div 100 = 7.5 \text{ m. } 80 \text{ m is longer than } 7.5 \text{ m.}$ <i>1 mark: True.</i> <i>1 mark: both changed to the same unit (80 m and 7.5 m, or 8000 cm and 750 cm).</i>	2

Converting Units of Length · WA6MMGTW2

Q	Answer	Working / sample response	Marks									
3	Sometimes	1250 m is longer than 2 m, so it can be true. 1250 mm = 1.25 m is shorter than 2 m, so it is not always true. The unit matters. <i>1 mark: Sometimes.</i> <i>1 mark: one example where it is true and one where it is false.</i>	2									
4	0.25 km	2.5 m, 250 cm and 2500 mm are all the same length (2.5 m). 0.25 km = 250 m, which is 100 times longer. <i>1 mark: 0.25 km.</i> <i>1 mark: shows the other three are all 2.5 m.</i>	2									
5	See table	<table><tr><th></th><th>Whole cm</th><th>Not whole cm</th></tr><tr><td>Less than 1 m</td><td>0.45 m, 99 cm</td><td>8.5 cm, 675 mm</td></tr><tr><td>1 m or more</td><td>1250 mm, 0.3 km</td><td>1.075 m, 2005 mm</td></tr></table> 2005 mm = 200.5 cm = 2.005 m, so it is 1 m or more and not a whole number of centimetres. <i>1 mark: all eight sorted correctly (accept seven).</i> <i>1 mark: explanation for 2005 mm.</i>		Whole cm	Not whole cm	Less than 1 m	0.45 m, 99 cm	8.5 cm, 675 mm	1 m or more	1250 mm, 0.3 km	1.075 m, 2005 mm	2
	Whole cm	Not whole cm										
Less than 1 m	0.45 m, 99 cm	8.5 cm, 675 mm										
1 m or more	1250 mm, 0.3 km	1.075 m, 2005 mm										

D

Challenge solutions and criteria

/ 9 marks

Q	Answer	Working / sample response	Marks
1	4 ways: $0 \times 45 \text{ cm} + 10 \times 30 \text{ cm}$ $2 \times 45 \text{ cm} + 7 \times 30 \text{ cm}$ $4 \times 45 \text{ cm} + 4 \times 30 \text{ cm}$ $6 \times 45 \text{ cm} + 1 \times 30 \text{ cm}$	3 m = 300 cm. Try 0, 1, 2, ... pieces of 45 cm and see if the rest is a multiple of 30: $0 \times 45 \text{ cm} + 10 \times 30 \text{ cm}$, $2 \times 45 \text{ cm} + 7 \times 30 \text{ cm}$, $4 \times 45 \text{ cm} + 4 \times 30 \text{ cm}$, $6 \times 45 \text{ cm} + 1 \times 30 \text{ cm}$. An odd number of 45 cm pieces leaves a length ending in 5, which 30s cannot make; 7 or more is too long. <i>2 marks: all four ways (1 mark for two or three).</i> <i>1 mark: a systematic list or clear reason no others work.</i>	3
2	5.35 m	Work backwards: $1.2 \text{ m} + 0.8 \text{ m} = 2 \text{ m}$ (before using 80 cm). $2 \text{ m} \times 2 = 4 \text{ m}$ (before giving half away). $4 \text{ m} + 1.35 \text{ m} = 5.35 \text{ m}$ at the start. Check: $5.35 - 1.35 = 4$, half is 2, $2 - 0.8 = 1.2 \checkmark$ <i>1 mark: converts 80 cm to 0.8 m and adds.</i> <i>1 mark: doubles to 4 m.</i> <i>1 mark: 5.35 m.</i>	3
3	a) 5 cm b) 20 packs c) 10,000 sheets	a) $500 \times 0.1 = 50 \text{ mm} = 5 \text{ cm}$. b) $1 \text{ m} = 100 \text{ cm}$, and $100 \div 5 = 20$ packs. c) $20 \times 500 = 10,000$ sheets. <i>1 mark for each part.</i>	3