Steady Steps Maths

FREE UNIT TEST · TOPIC 10

FREE SAMPLE · UNIT TEST A

Area, Surface Area & Volume

Unit Test A · 40 marks · about 40 minutes

GRADE 6



Common Core 6.G.A.1–4

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Name _____ Date _____

UNIT TEST A

Area, Surface Area & Volume

40 marks · about 40 minutes · Common Core 6.G.A.1–4

Name _____ **Date** _____

Instructions

- Answer **every** question in the space given.
- Show your working: in Sections B and C you get marks for your method, even if the final answer is wrong.
- The number in brackets, like [2], shows how many marks a question is worth.
- You have about 40 minutes. A calculator is **not** needed.
- Check your answers if you finish early.

Your score

Section	Questions	Marks	Your score
A · Quick questions	1–10	10	
B · Show your working	11–16	17	
C · Problem solving	17–18	13	
Total		**40**	

Percentage: _____ % 85%+ excellent · 65–84% good · 45–64% keep practising · below 45% revise the packs first

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SECTION A Quick questions

1 mark each · write your answer in the box

1. A parallelogram has a base of 14 cm and a height of 6 cm. What is its area? [1]

   Answer

2. A triangle has a base of 14 cm and a height of 5 cm. What is its area? [1]

   Answer

3. A trapezoid has parallel sides of 7 cm and 11 cm and a height of 8 cm. What is its area? [1]

   Answer

4. How long is the line segment from (−4, 1) to (1, 1)? [1]

   Answer

5. A net is made of 6 rectangles. Which solid does it fold into? [1]

   Answer

6. What is the surface area of a cube with 5 cm edges? [1]

   Answer

7. Find the volume of a box 9 cm by 6 cm by 2 cm. [1]

   Answer

8. A prism has a base area of 27 cm^2 and a height of 2 cm. What is its volume? [1]

   Answer

9. Which unit is used for volume: cm, cm^2 or cm^3? [1]

   Answer

10. A rectangle has an area of 30 cm^2 and a length of 5 cm. What is its width? [1]

    Answer

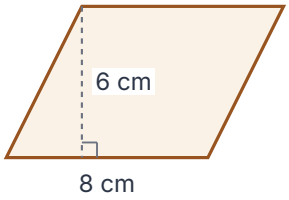
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SECTION B Show your working

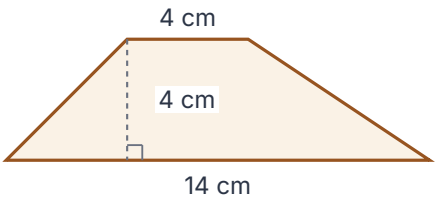
Marks are given for your method

11 Find the area of this parallelogram. The slanted side is 7 cm. [2]



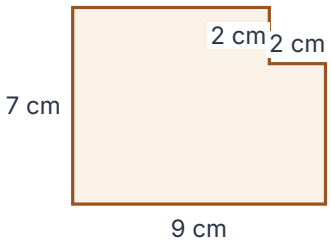
Answer _____

12 Find the area of this trapezoid. [3]



Answer _____

13 Find the area of this shape. Show how you split it. [3]



Answer _____

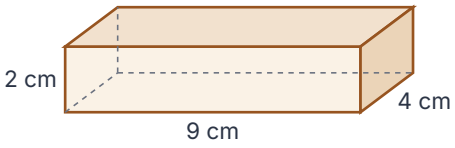
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14 A rectangle has vertices (−4, −2), (4, −2), (4, 3) and (−4, 3). Find its perimeter and area. [3]

Answer

15 Find the surface area of this box. [3]



Answer

16 A box is $4\frac{1}{2}$ cm long, 4 cm wide and 5 cm tall. Find its volume. [3]

Answer

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SECTION C Problem solving

Longer questions with several steps

17 A gift box is 25 cm long, 15 cm wide and 25 cm tall. [7]

(a) Find its volume.

(b) Find how much card is needed to make it (its surface area).

(c) Small cubes with 5 cm edges are packed inside. Can the box be filled exactly? Explain.

Answer

18 The front of a house is a 6 m by 3 m rectangle with a triangle on top. The triangle has a base of 6 m and a height of 3 m. The door is 1 m by 2 m. [6]

(a) Find the area of the rectangle and the triangle.

(b) Find the area of the front that needs painting (not the door).

Answer

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Mark scheme

For parents · give the marks shown; method marks can be given even if the final answer is wrong

Tip: Give method marks generously when the working shows the right idea. If a mistake early on is carried through correctly, give the later marks.

Q	Answer	Marks	How to award the marks
1	84 cm²	1	
2	35 cm²	1	
3	72 cm²	1	
4	5 units	1	
5	rectangular prism	1	
6	150 cm²	1	
7	108 cm³	1	
8	54 cm³	1	
9	cm³	1	
10	6 cm	1	
11	48 cm²	2	1 mark for 8 × 6 (using the height, not 7); 1 mark for the answer with units.
12	36 cm²	3	1 mark for adding 4 + 14; 1 mark for × 4 ÷ 2; 1 mark for the answer.
13	59 cm²	3	1 mark for a correct split; 1 mark for both areas (e.g. 9 × 5 + 7 × 2 = 45 + 14, or 9 × 7 − 2 × 2); 1 mark for the answer.
14	perimeter 26 units; area 40 square units	3	1 mark for both side lengths; 1 mark for the perimeter; 1 mark for the area.
15	124 cm²	3	1 mark for the three different faces (36, 18, 8); 1 mark for doubling; 1 mark for the total.
16	90 cm³	3	1 mark for l × w × h; 1 mark for working with the fraction; 1 mark for the answer.
17	(a) 9,375 cm³ (b) 2,750 cm² (c) yes: every edge is a multiple of 5	7	(a) 2 marks. (b) 3 marks: 1 for the faces, 1 for doubling, 1 for the total. (c) 2 marks: 1 for checking all three edges against 5 cm, 1 for the conclusion.
18	(a) rectangle 18 m², triangle 9 m² (b) 25 m²	6	(a) 3 marks: 1 for the rectangle, 2 for the triangle (1 for halving). (b) 3 marks: 1 for adding, 1 for subtracting the door, 1 for the answer.

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What to revise

Circle the questions your child lost marks on, then go back to the matching part of the pack

Questions	Skill	Revise in	✓ / ×
1, 10, 11	Parallelograms	Pack 1 · Area of Polygons, Part 1	
2	Triangles	Pack 1 · Area of Polygons, Part 2	
3, 12	Trapezoids	Pack 1 · Area of Polygons, Part 3	
4, 14	Side lengths from coordinates	Pack 2 · Shapes on the Coordinate Plane, Part 1	
5	Nets	Pack 3 · Nets & Surface Area, Part 1	
6, 15	Surface area	Pack 3 · Nets & Surface Area, Part 2	
7, 9	Volume of boxes	Pack 4 · Volume of Prisms, Part 1	
8	V = B × h	Pack 4 · Volume of Prisms, Part 3	
13, 18	Composite shapes	Pack 1 · Area of Polygons, Part 4	
16	Fraction edge lengths	Pack 4 · Volume of Prisms, Part 2	
17	Volume and surface area	Pack 3 · Nets & Surface Area, Part 2 and Pack 4 · Volume of Prisms, Part 1	

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