

Circles, Area, Surface Area and Volume: math test solutions, Grade 7 – download the PDF

Test solutions with the detailed point scale. Add up your points and spot what to review.

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 A circle

/ 3 pts

- a. $r = 20 \div 2 = 10$ cm. (1 pt)
- b. $C = 3.14 \times 20 = 62.8$ cm. (1 pt)
- c. $A = 3.14 \times 10^2 = 3.14 \times 100 = 314$ cm². (1 pt)

2 Triangles and quadrilaterals

/ 3 pts

- a. $A = \frac{1}{2} \times 15 \times 8 = 60$ cm². (1 pt)
- b. $A = 12 \times 7.5 = 90$ cm². (1 pt)
- c. $A = \frac{1}{2}(11 + 17) \times 6 = 14 \times 6 = 84$ cm². (1 pt)

3 A composite figure

/ 4 pts

- a. $12 \times 8 = 96 \text{ in}^2$. (1 pt)
- b. $A = \frac{1}{2} \times 12 \times 5 = 30 \text{ in}^2$. (2 pts: 1 for the formula, 1 for the result)
- c. $96 + 30 = 126$. The banner has an area of **126 in²**. (1 pt)

4 A triangular prism

/ 4 pts

- a. Base area: $\frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2$. $V = 30 \times 10 = 300 \text{ cm}^3$. (2 pts)
- b. Two bases: $2 \times 30 = 60 \text{ cm}^2$. Rectangles: $(5 + 12 + 13) \times 10 = 300 \text{ cm}^2$.
 $SA = 60 + 300 = 360 \text{ cm}^2$. (2 pts)

5 A square pyramid

/ 3 pts

- Base: $12 \times 12 = 144 \text{ m}^2$. (1 pt)
- One face: $\frac{1}{2} \times 12 \times 10 = 60 \text{ m}^2$, so four faces: **240 m²**. (1 pt)
- $SA = 144 + 240 = 384 \text{ m}^2$. (1 pt)

6 A fish tank

/ 3 pts

- a. $50 \times 30 \times 40 = 60,000 \text{ cm}^3$. (1 pt)
- b. $50 \times 30 \times 30 = 45,000 \text{ cm}^3$. (1 pt)
- c. $45,000 \div 1,000 = 45$, so the tank holds **45 L** of water. (1 pt)



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