

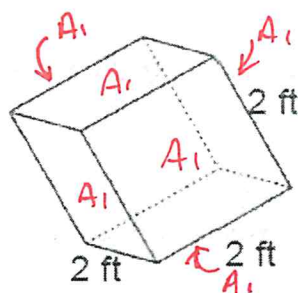
Grade 8 Math – Measurement Surface Area of 3D Shapes - 1

Name: Key

Class: _____

In order to give you practice on the layout of your work, here are some new questions and space to show your work.

1.

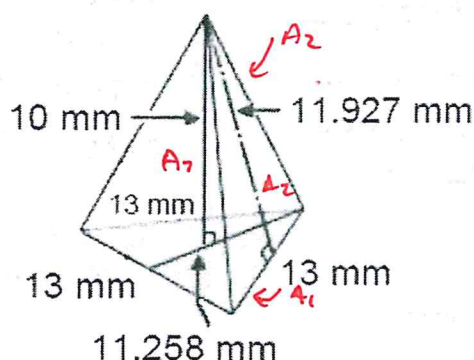


$$\begin{aligned} A_1 &= s^2 \\ &= 2\text{ ft} \times 2\text{ ft} \\ &= 4\text{ ft}^2 \end{aligned}$$

$$\begin{aligned} A_T &= 6A_1 \\ &= 6(4\text{ ft}^2) \\ &= 24\text{ ft}^2 \end{aligned}$$

$\therefore$ The total surface Area is 24 ft^2

2.

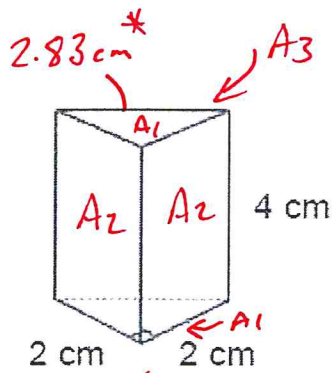


$$\begin{aligned} A_1 &= \frac{B \times H}{2} \\ &= \frac{13\text{ mm} \times 11.258\text{ mm}}{2} \\ &= \frac{146.354\text{ mm}^2}{2} \\ &= 73.177\text{ mm}^2 \end{aligned}$$

$$\begin{aligned} A_2 &= \frac{B \times H}{2} \\ &= \frac{13\text{ mm} \times 11.927\text{ mm}}{2} \\ &= \frac{155.051\text{ mm}^2}{2} \\ &= 77.5255\text{ mm}^2 \end{aligned}$$

$$\begin{aligned} A_T &= A_1 + 3A_2 \\ &= 73.177\text{ mm}^2 + 3(77.5255\text{ mm}^2) \\ &= 73.177\text{ mm}^2 + 232.5765\text{ mm}^2 \\ &= 305.75\text{ mm}^2 \end{aligned}$$

$\therefore$ The Total surface area is 305.75 mm^2 rounded to two decimal spaces.



$$A_1 = \frac{B \times H}{2} \\ = \frac{2 \text{ cm} \times 2 \text{ cm}}{2} \\ = \frac{4 \text{ cm}^2}{2} \\ = 2 \text{ cm}^2$$

$$A_2 = L \times w \\ = 2 \text{ cm} \times 4 \text{ cm} \\ = 8 \text{ cm}^2$$

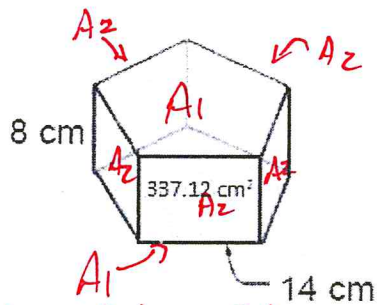
$$A_3 = L \times w \\ = 2.83 \text{ cm} \times 4 \text{ cm} \\ = 11.32 \text{ cm}^2$$

$$A_T = 2A_1 + 2A_2 + A_3 \\ = 2(2 \text{ cm}^2) + 2(8 \text{ cm}^2) + (11.32 \text{ cm}^2) \\ = 4 \text{ cm}^2 + 16 \text{ cm}^2 + 11.32 \text{ cm}^2 \\ = 31.32 \text{ cm}^2$$

$\therefore$ The total surface area is 31.32 cm^2 .

* This measure is the hypotenuse of a right isosceles triangle. Using the Pythagorean Theorem, the length is calculated to be 2.83 cm
 $A^2 + B^2 = C^2$
 $(2 \text{ cm})^2 + (2 \text{ cm})^2 = C^2$
 $4 \text{ cm}^2 + 4 \text{ cm}^2 = C^2$
 $8 \text{ cm}^2 = C^2$
 $\sqrt{8 \text{ cm}^2} = C$
 $2.83 \text{ cm} = C$

4.



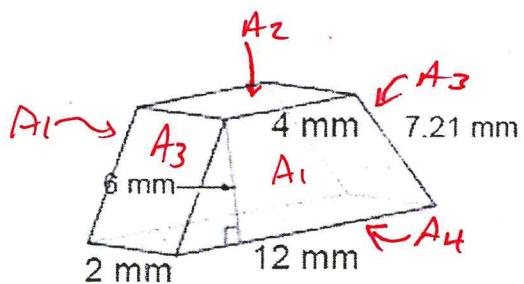
$$A_1 = 337.12 \text{ cm}^2 \text{ (given)}$$

$$A_2 = L \times w \\ = 8 \text{ cm} \times 14 \text{ cm} \\ = 112 \text{ cm}^2$$

$$A_T = 2A_1 + 5A_2 \\ = 2(337.12 \text{ cm}^2) + 5(112 \text{ cm}^2) \\ = 674.24 \text{ cm}^2 + 560 \text{ cm}^2 \\ = 1234.24 \text{ cm}^2$$

$\therefore$ The surface area is 1234.24 cm^2

5.



$$A_1 = \frac{T+B}{2} \times h \\ = \frac{4 \text{ mm} + 12 \text{ mm}}{2} \times 6 \text{ mm} \\ = \frac{16 \text{ mm}}{2} \times 6 \text{ mm} \\ = 8 \text{ mm} \times 6 \text{ mm} \\ = 48 \text{ mm}^2$$

$$A_2 = L \times w \\ = 4 \text{ mm} \times 2 \text{ mm} \\ = 8 \text{ mm}^2$$

$$A_3 = L \times w \\ = 7.21 \text{ mm} \times 2 \text{ mm} \\ = 14.42 \text{ mm}^2$$

$$A_4 = L \times w \\ = 12 \text{ mm} \times 2 \text{ mm} \\ = 24 \text{ mm}^2$$

$$A_T = 2A_1 + A_2 + 2A_3 + A_4 \\ = 2(48 \text{ mm}^2) + 8 \text{ mm}^2 + 2(14.42 \text{ mm}^2) + 24 \text{ mm}^2 \\ = 96 \text{ mm}^2 + 8 \text{ mm}^2 + 28.84 \text{ mm}^2 + 24 \text{ mm}^2 \\ = 156.84 \text{ mm}^2$$

$\therefore$ The Total surface area of this Trapezoidal prism is 156.84 mm^2