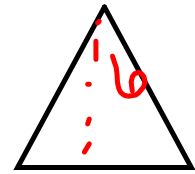
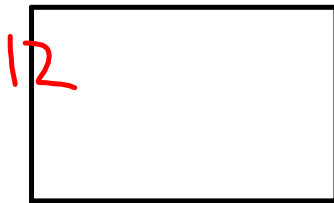
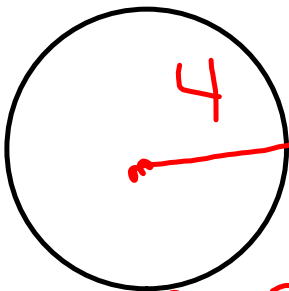
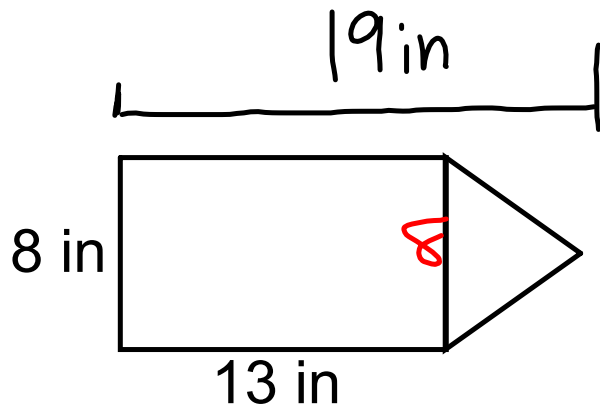
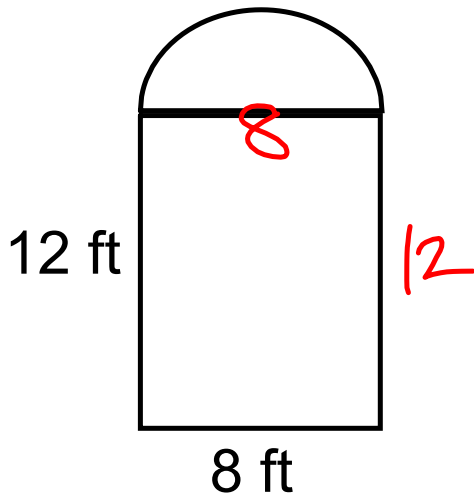


Warm Up

What is the surface area of each shape?



$$A = \pi r^2$$

$$= 11(4)^2$$

$$= 25.12 \text{ ft}^2 + 16 \text{ ft}^2$$

$$\text{Total SA} = 121.12 \text{ ft}^2$$

$$A = b \times h$$

$$13 \times 8$$

$$104 \text{ in}^2$$

$$A = \frac{b \times h}{2}$$

$$\frac{8 \times 6}{2}$$

$$= 24 \text{ in}^2$$

$$128 \text{ in}^2$$

Homework

Master 1.22b

Activating P

Surface Areas of Right Prisms and Right Cylinders Quick Review

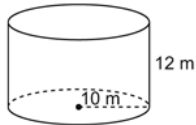
The surface area of a right rectangular prism is:
 $2 \times \text{area of top face} + 2 \times \text{area of front face} + 2 \times \text{area of side face}$

The surface area of a right triangular prism is:
 Sum of the areas of the rectangular faces + $2 \times \text{area of triangular base}$

The surface area of a right cylinder is:
 $2 \times \text{area of circular base} + \text{circumference of base} \times \text{height of cylinder}$

Example

Determine the surface area of this cylinder to the nearest tenth of a square metre.



Solution

The area of the circular base is: $\pi (10)^2$

The circumference of the base is: $2\pi (10)$

The height is: 12

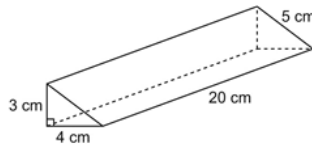
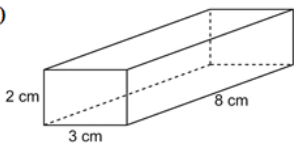
The surface area is: $2 \times \pi (10)^2 + 2 \times \pi (10) \times 12 \doteq 1382.30$

The surface area of the cylinder is approximately 1382.3 m^2 .

Check

1. Calculate the surface area of each object.

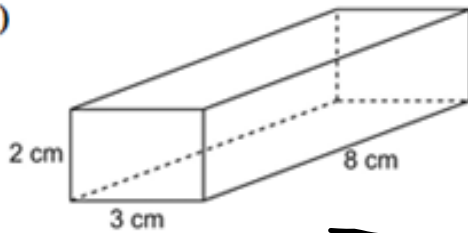
a) b)



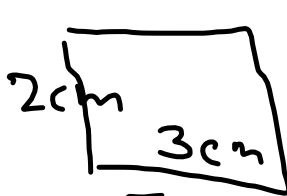
2. A cylinder has base radius 12 cm and height 15 cm. Determine the surface area of the cylinder to the nearest tenth of a square metre.

Check

1. Calculate the surface area of each object
a)



92 cm²



Front



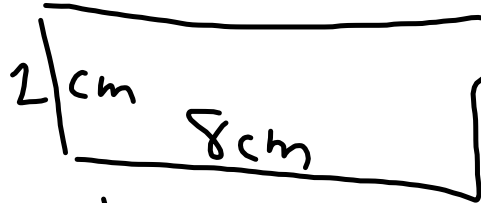
Back

$$A = b \times h$$

$$2 \times 3$$

$$\frac{6 \text{ cm}^2}{\times 2}$$

$$\underline{12 \text{ cm}^2}$$



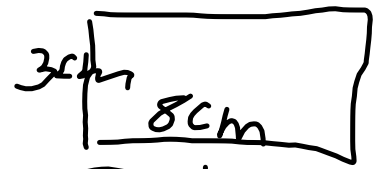
LS : RS

$$A = b \times h$$

$$8 \times 2$$

$$\frac{16 \text{ cm}^2}{\times 2}$$

$$32 \text{ cm}^2$$



Top

Bottom

$$A = b \times h$$

$$8 \times 3$$

$$24 \text{ cm}^2$$

$$\times 2$$

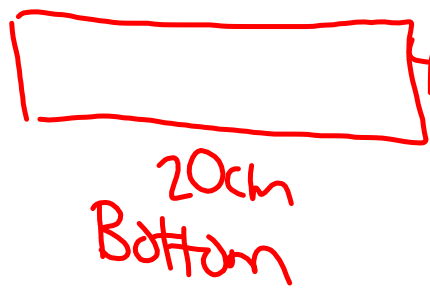
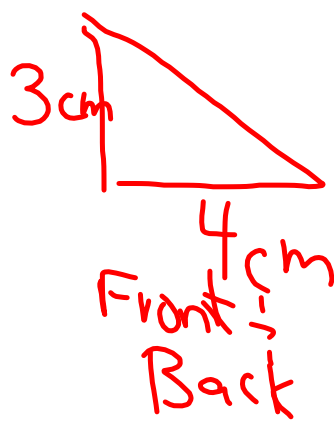
$$\underline{48 \text{ cm}^2}$$

b)

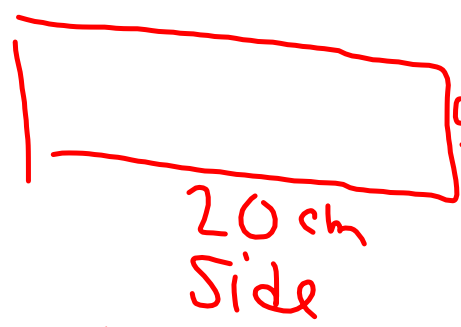


252 cm^2

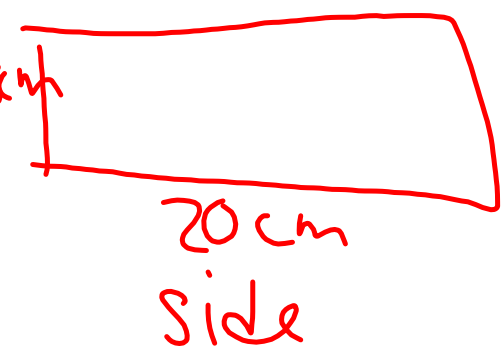
$A = \frac{b \times h}{2} = \frac{3 \times 4}{2} \times 2 = 12 \text{ cm}^2$



$A = b \times h$
 $4 \times 20 = 80 \text{ cm}^2$

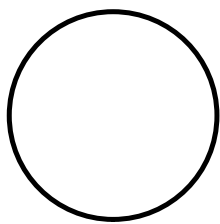
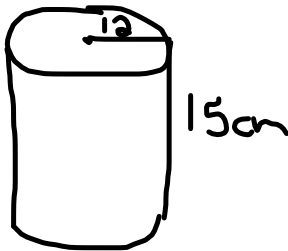


$A = b \times h$
 $5 \times 20 = 100 \text{ cm}^2$



$A = b \times h$
 $20 \times 3 = 60 \text{ cm}^2$

2. A cylinder has base radius 12 cm and height 15 cm. Determine the surface area of the cylinder to the nearest tenth of a square metre.



x 2

15



$$A = 2\pi r^2$$

$$2\pi(12)^2$$

$$452.16\text{cm}^2$$

$$\times 2$$

$$2\pi r$$

$$2\pi(12)$$

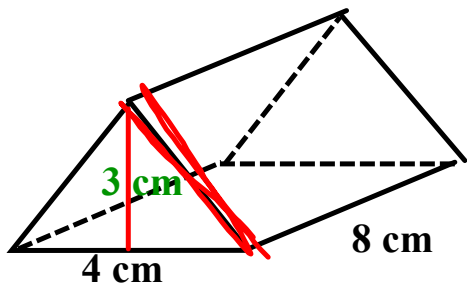
$$75.36$$

$$A = b \times h$$

$$75.36 \times 15$$

$$904.32\text{cm}^2 + 1130.4\text{cm}^2$$

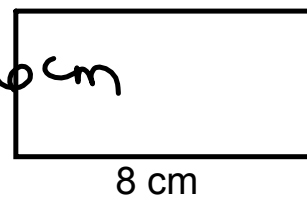
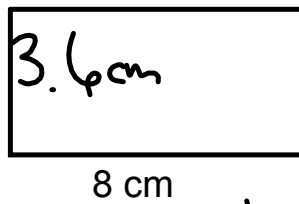
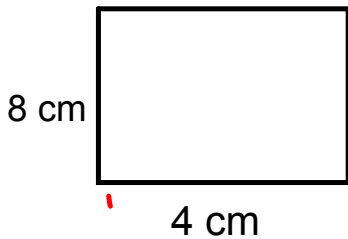
$$2034.72\text{cm}^2$$



$$a^2 + b^2 = c^2$$

$$2^2 + 3^2 = \sqrt{13}$$

$$4 + 9 = \sqrt{13}$$



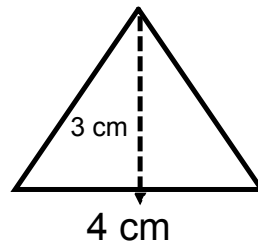
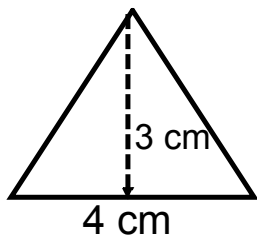
$$A = b \times h$$

$$8 \times 4 = 32 \text{ cm}^2$$

$$A = b \times h$$

$$8 \times 3.6 = 28.8 \text{ cm}^2$$

28.8 cm²



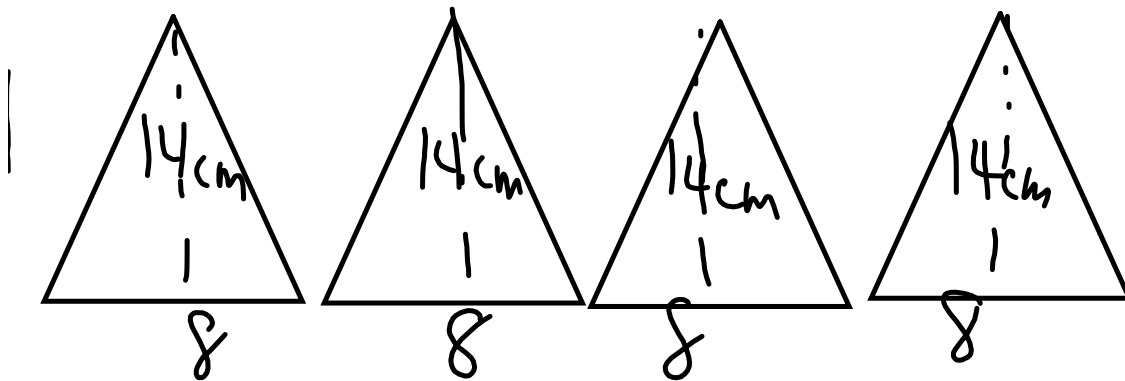
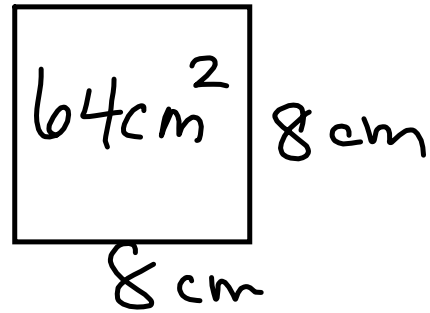
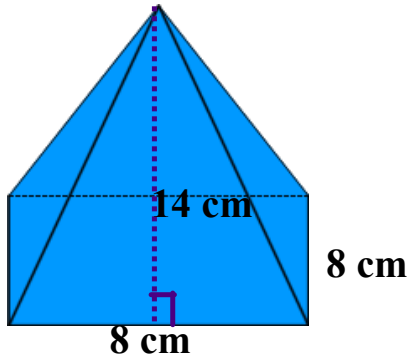
$$A = \frac{b \times h}{2}$$

$$\frac{3 \times 4}{2} = 6 \text{ cm}^2$$

$$6 \text{ cm}^2$$

Total SA = 101.6 cm²

What is the surface area of the following shape?



$$A = \left(\frac{b \times h}{2} \right) \times 4$$

$$\left(\frac{8 \times 14}{2} \right) \times 4 = 224 \text{ cm}^2$$

$$\text{Total SA} = 288 \text{ cm}^2$$

Cone

Surface Area

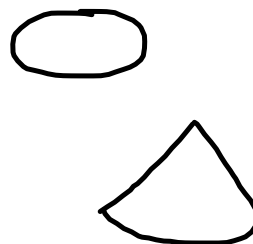
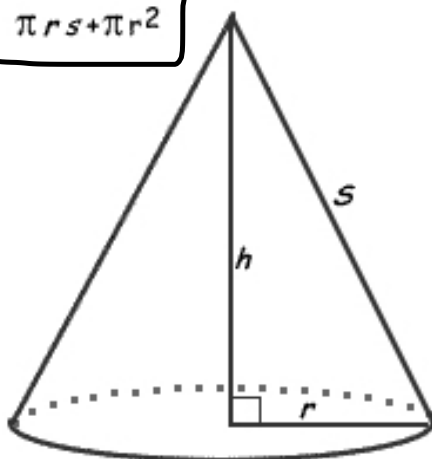
We will need to calculate the surface area of the cone and the base.

Area of the cone is $\pi r s$

Area of the base is πr^2

Therefore the
Formula is:

$$SA = \pi r s + \pi r^2$$



Sphere

$$A = 4\pi r^2$$

