Curriculum Outcome

(N5) Determine the square root of positive rational numbers that are perfect squares.

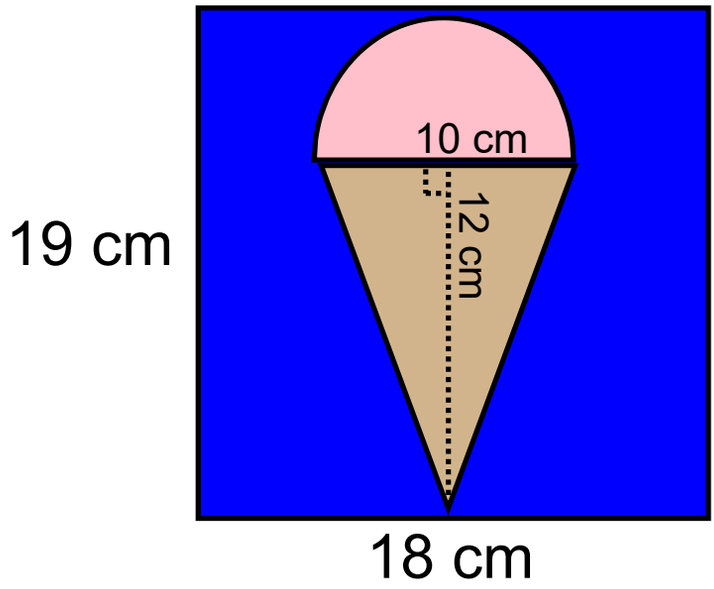
(N6) Determine an approximate square root of positive rational numbers that are non-perfect squares.

(SS2) Determine the surface area of composite 3-D objects to solve problems

(N4) **Explain and apply the order of operations, including exponents, with and without technology.**

Warm Up

1) Find the surface area of the blue:



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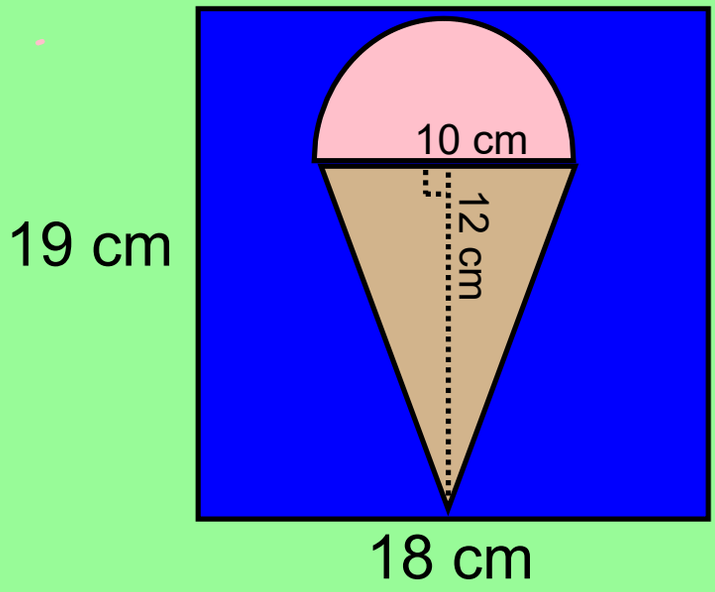

$A = b \times h$

$A = 18 \times 19$

$A = 342\ cm^2$

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

$A = \frac{10 \times 12}{2}$

$= 60\ cm^2$

$A = \frac{\pi r^2}{2}$

$A = \frac{\pi (5)^2}{2}$

$A = 39.26\ cm^2$

$TSA = 342 - 60 - 39.26$

$= 242.72\ cm^2$

A cylinder has a base diameter of 18in and a height of 12in. Determine the surface area of the cylinder.

(Hint: Sketch a diagram and state the formula)

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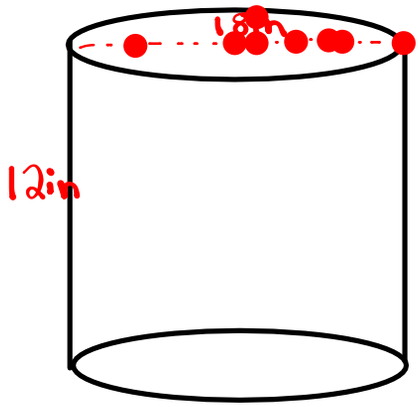


$SA = 2\pi r^2 + 2\pi rh$

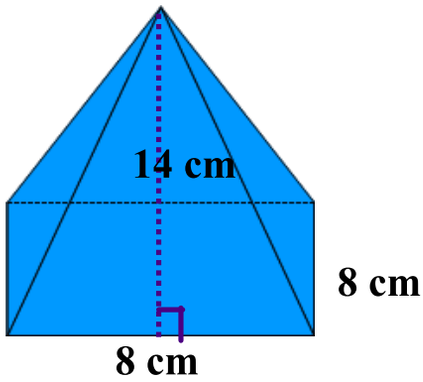
$= 2(\pi)(9)^2 + 2\pi(9)(12)$

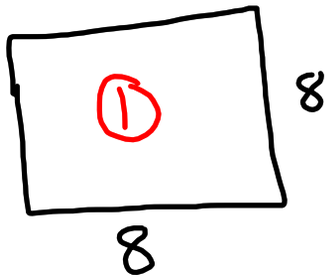
$= 508.68 + 678.24$

$= 1186.92\ in^2$

What is the surface area of the following shape?

5 faces

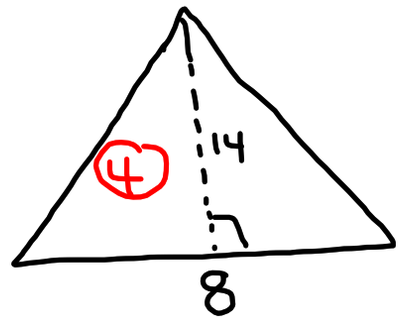




$A = b \times h$

$A = 8 \times 8$

$A = 64 cm^2$



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

$A = \frac{8 \times 14}{2}$

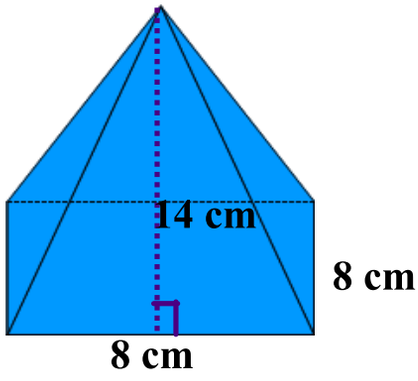
$A = 56 cm^2$

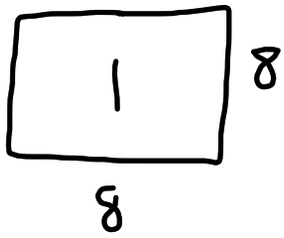
$4A = 224 cm^2$

$\overline{|}SA = 64 + 224$

$= 288 cm^2$

What is the surface area of the following shape?





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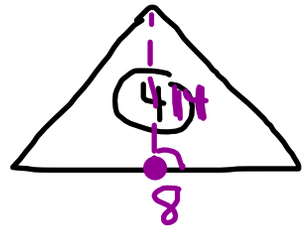

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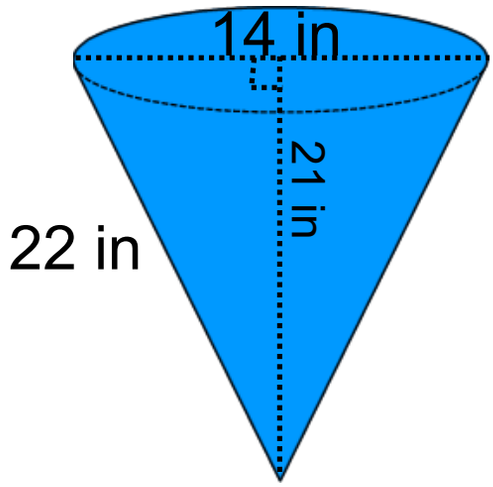
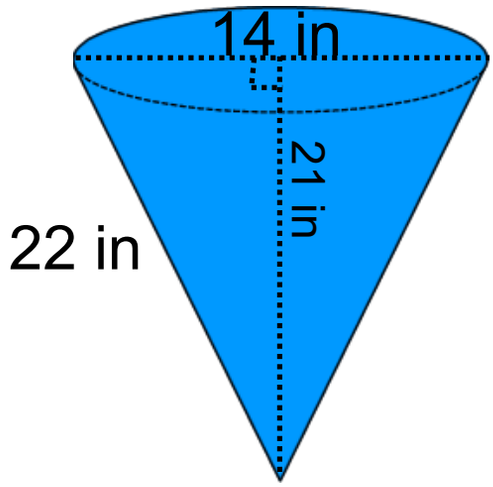

14 in
21 in
22 in

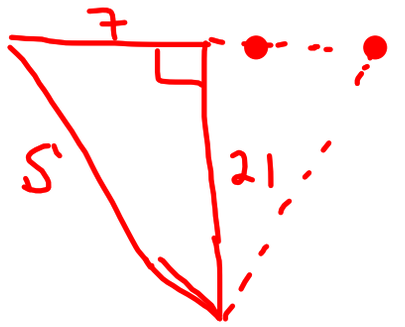


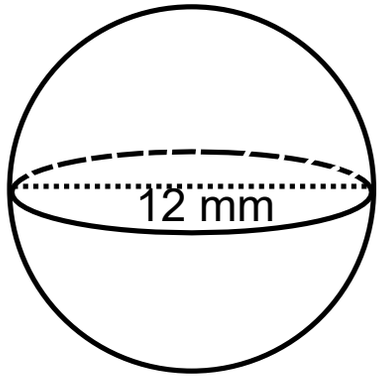
$$SA = \pi r^2 + \pi r s$$

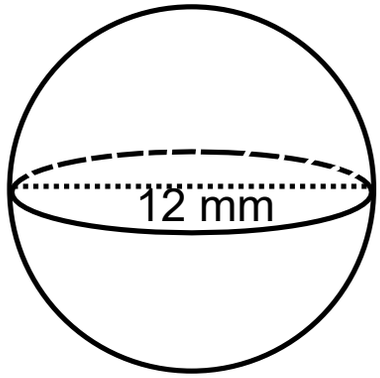
$$= \pi (7)^2 + \pi (7)(22)$$

$$= 153.86 + 483.56$$

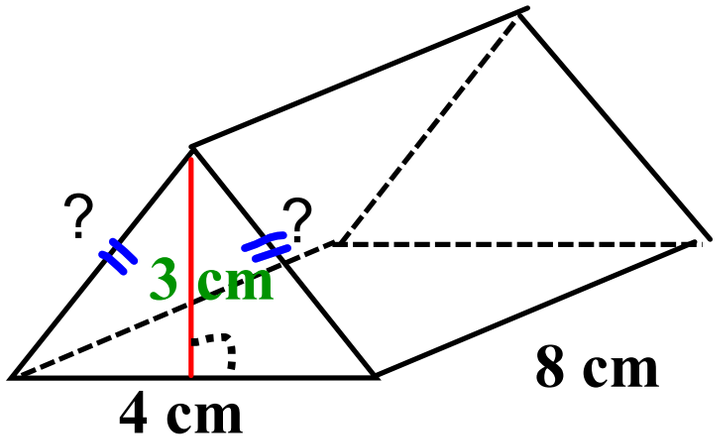
$$= 637.42 \text{ in}^2$$




12 mm



$$SA = 4\pi r^2$$
$$= 4\pi (6)^2$$
$$= 452.16\ mm^2$$



Ans: 101.6 cm^2

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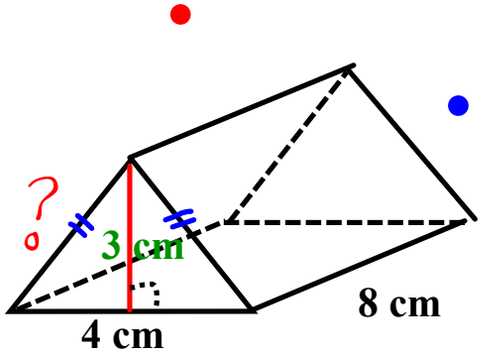
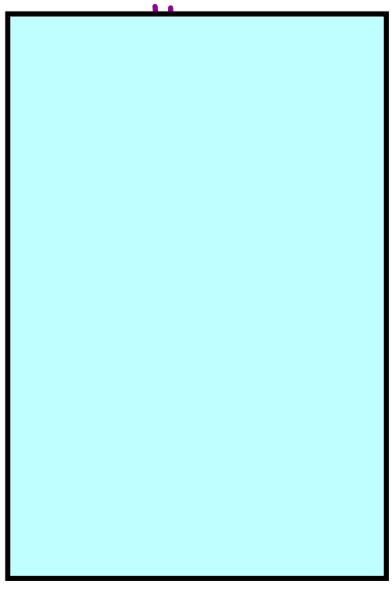
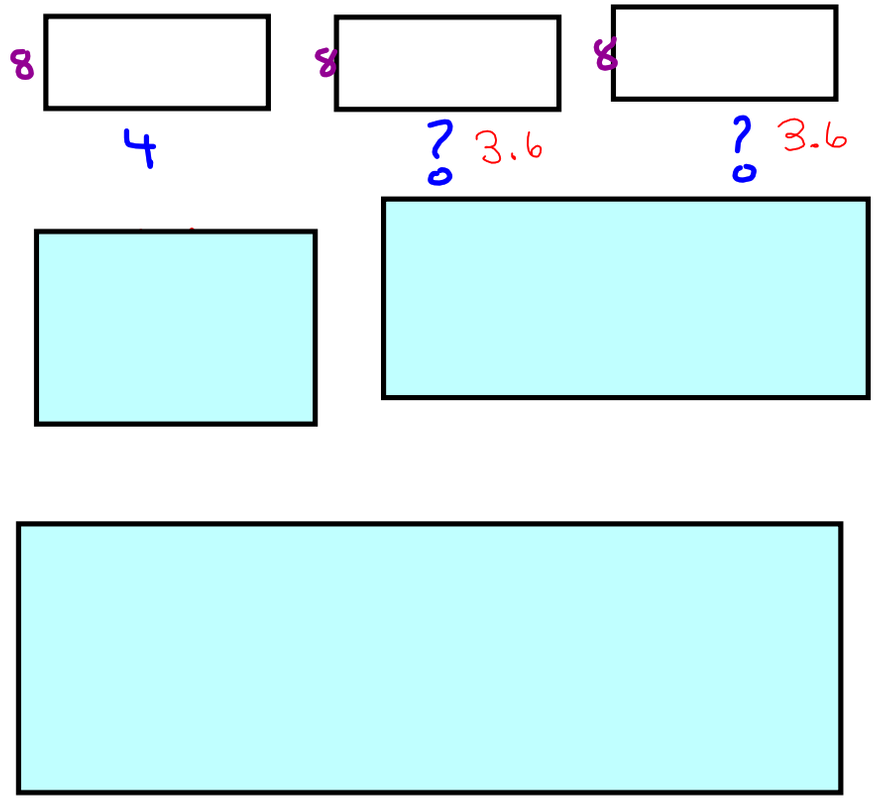






Homework

Master 1.22b **Activating Prior Knowledge**

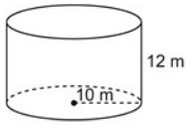
Surface Areas of Right Prisms and Right Cylinders Quick Review

The surface area of a right rectangular prism is:
2 × area of top face + 2 × area of front face × 2 × area of side face

The surface area of a right triangular prism is:
Sum of the areas of the rectangular faces + 2 × area of triangular base

The surface area of a right cylinder is:
2 × area of circular base + circumference of base × height of cylinder

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

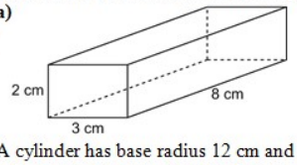


Solution
The area of the circular base is: $\pi(10)^2$
The circumference of the base is: $2\pi(10)$
The height is: 12
The surface area is: $2 \times \pi(10)^2 + 2 \times \pi(10) \times 12 \doteq 1382.30$
The surface area of the cylinder is approximately 1382.3 m^2.

Check

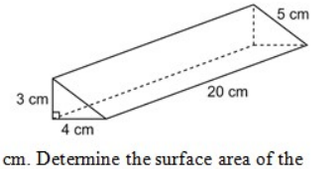
1. Calculate the surface area of each object.

a)



92 cm^2

b)



252 cm^2

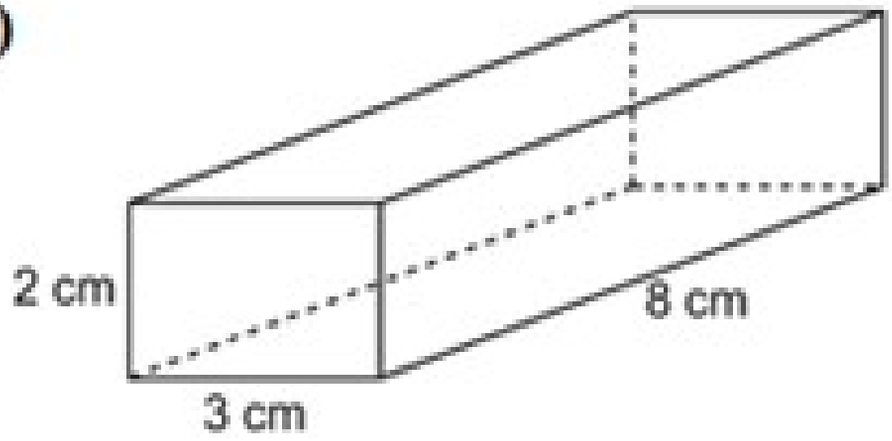
2. A cylinder has base radius 12 cm and height 15 cm. Determine the surface area of the cylinder to the nearest tenth of a square metre.

2035.8 cm^2

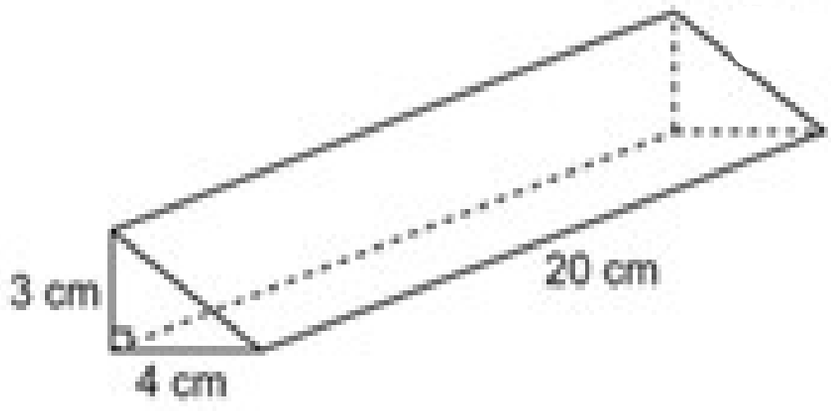
Check

1. Calculate the surface area of each object

a)



b)

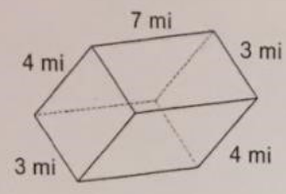


Surface Area Review

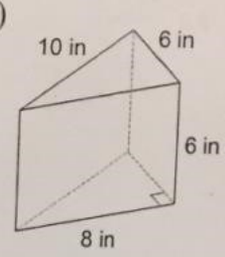
Date__

Find the surface area of each figure. Round to the nearest tenth.

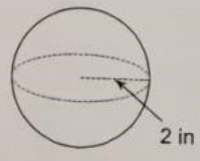
1)



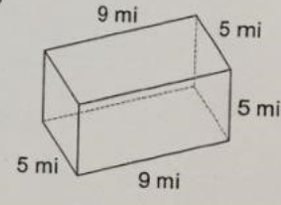
2)



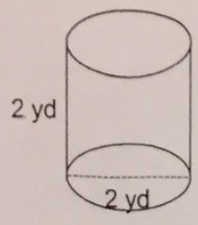
3)



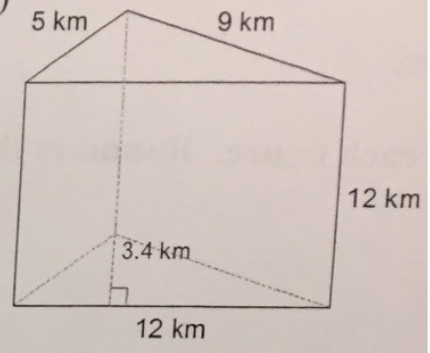
4)



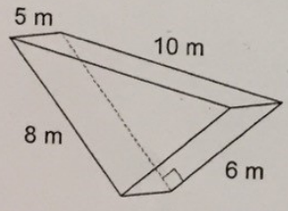
5)



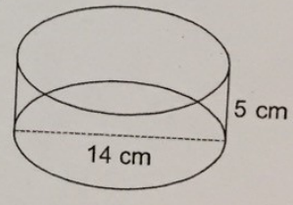
6)

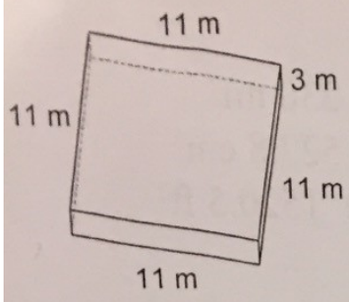


7)

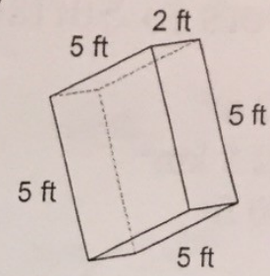


8)

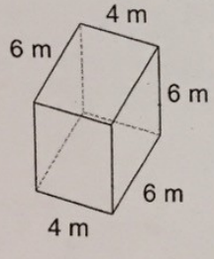




10)



11)



12)