

10.2 Surface Area of Pyramids and Cones

Pyramid:

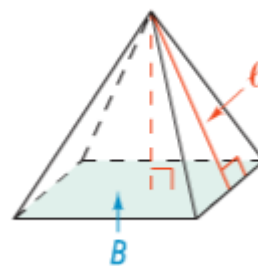
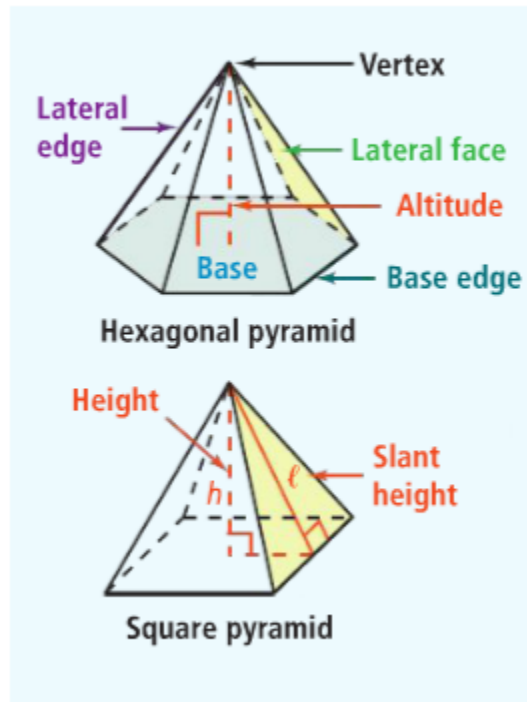
Altitude:

Slant Height:

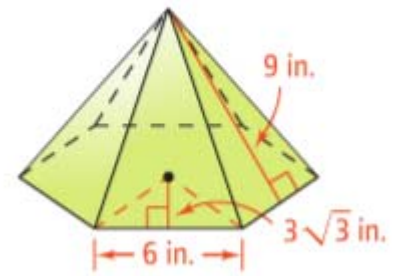
Regular Pyramid:

Lateral Area of a Regular Pyramid =

Surface Area of a Regular Pyramid =

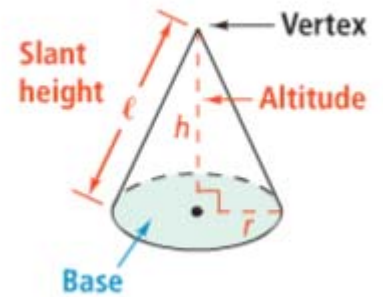


Ex 1: Find the lateral and surface areas of this regular hexagonal pyramid.



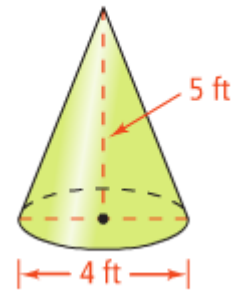
Cone:

Lateral Area of a Cone =



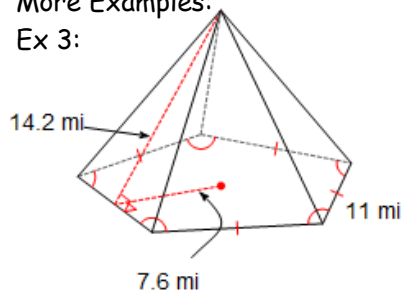
Surface Area of a Cone =

Ex 2: Find the lateral and surface areas of the following cone:

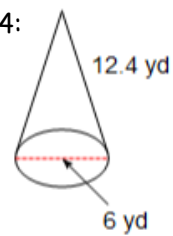


More Examples:

Ex 3:



Ex 4:



A square pyramid has a slant height of 2 inches and a surface area of 32 in^2 . What is the length of one side of the square base?

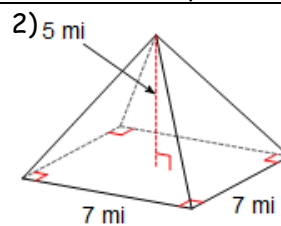
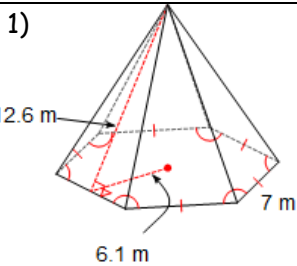
A cone has surface area of $72\pi \text{ cm}^2$ with a slant height of 6 cm. What is the length of the radius of the cone?

Your Try!

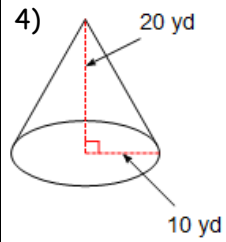
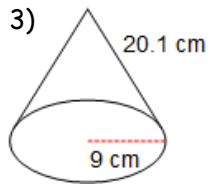
Summary:

10.2 Practice Problems

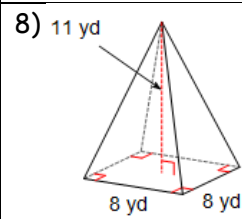
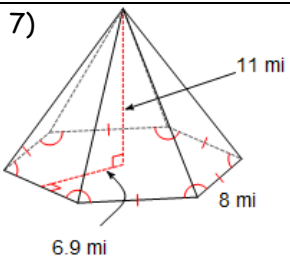
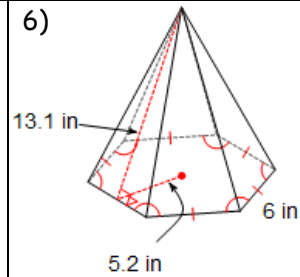
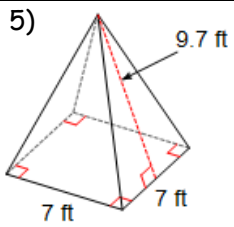
Directions: Find the lateral area. Round to the nearest tenth if necessary.



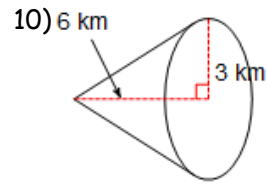
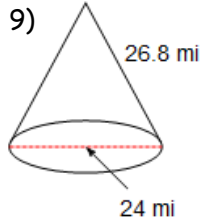
Directions: Find the lateral area. Leave in terms of π and round to the nearest tenth.



Directions: Find the surface area. Round to the nearest tenth if necessary.



Directions: Find the surface area. Leave in terms of π and round to the nearest tenth.



Directions: Find the missing length.

11) A square pyramid has a surface area of 84 in^2 with a slant height of 4 in. What is the length of one side of the base?

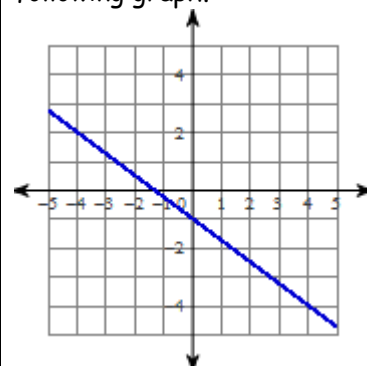
12) A cone has a surface area of $90\pi \text{ in}^2$ with a slant height of 9 in. What's the length of the radius?

Algebra Review

Solve: $4 - 8n > 6 - 5(5n - 3)$

Solve: $5b + 12 < 4(b + 4)$

Write the equation of the line for the following graph.



Factor Completely:

$$12n^2 + 117n + 168$$

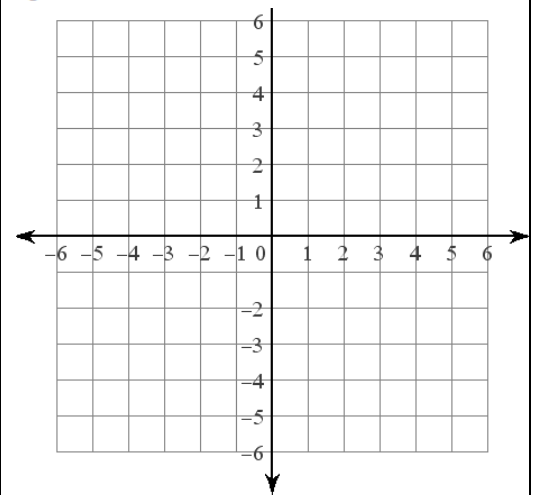
Factor Completely:

$$4k^2 - 25$$

Solve by graphing:

$$y = -5x - 3$$

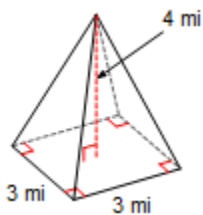
$$y = -5x + 3$$



10.2 APPLICATION and EXTENSION

Directions: Find the surface area to the nearest tenth.

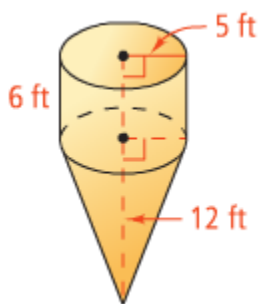
1)



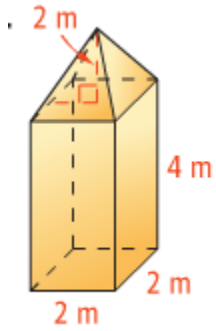
2) A cone has surface area of 65π in² and slant height of 8. What is the radius of the cone?

Find the surface area of the following to the nearest whole number.

3) Draw the two shapes that make up the composite figure. Then find the surface area. (HINT: Are you using all sides for each formula?)



4) Draw the two shapes that make up the composite figure. Then find the surface area. (HINT: Are you using all sides for each formula?)



5) Mr. Brust is growing increasingly concerned that the other Algebros are going to attack his house so he builds a lookout tower that is a cylinder with a cone on top (see picture). His wife is not happy with the grey color and makes Mr. Brust paint the watch tower pink. If the cylindrical part of the watch tower is 20 feet tall, the conical part 30 feet tall and the radius of both 10 feet, what is the square footage that he'll need to paint?



If one bucket of paint will cover 200 square feet, how many buckets will he need to buy?