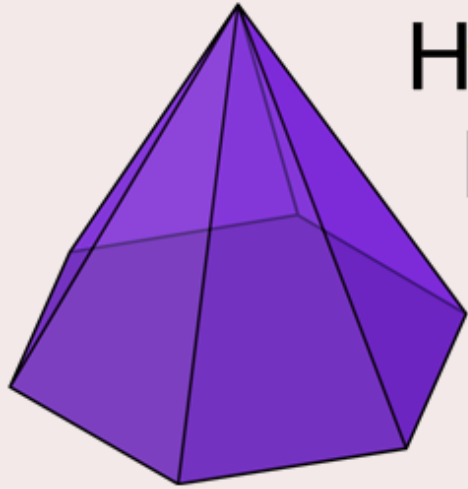# Surface Area of Cones and Pyramids

CCSS

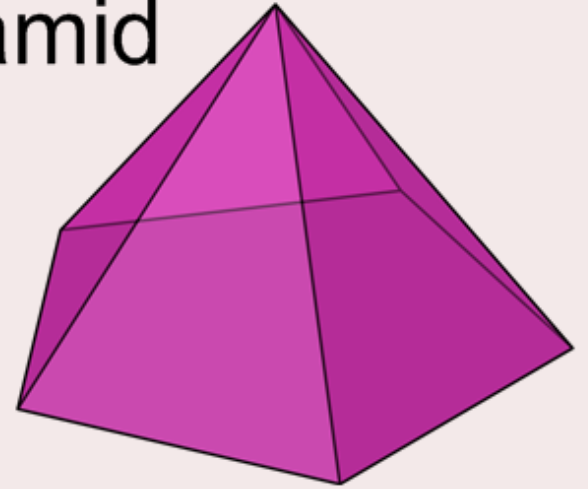You will be able to identify and name three-dimensional figures.

You will be able to find the lateral areas and surface areas of pyramids and cones.
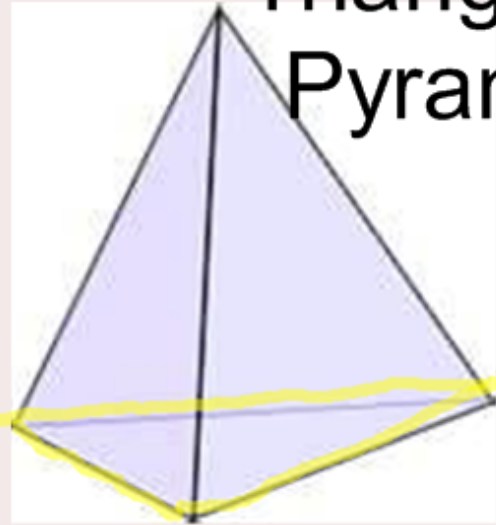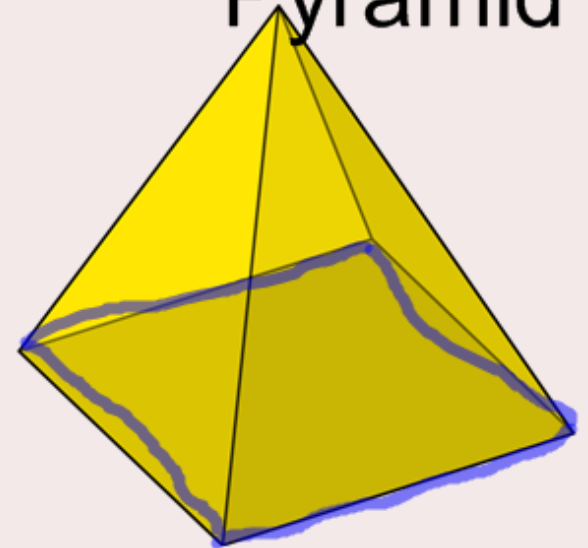
Regular Pyramids

Hexagonal Pyramid

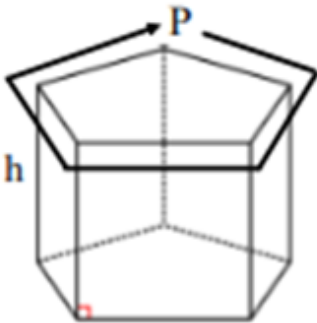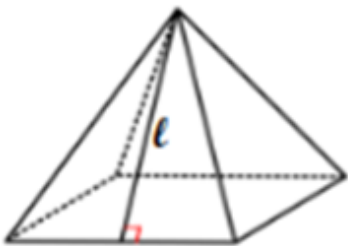## Pentagonal Pyramid

Triangular Pyramid

Square Pyramid

Formula sheet....

Solid	Area	Volume
Prism 2 Bases	Did yesterday	
Pyramid 1 base	$L = \frac{1}{2}Pl$ $T = L + B$	

KEY

T - total surface area

L - lateral area

P - Perimeter of Base

B - Area of Base

V - Volume

h - height

l - slant length

r - radius

Find the lateral area and surface area of each pyramid.   Round to the nearest tenth if necessary.

1.

20 cm
ℓ
13
15
15
15 cm

$L = \frac{1}{2}Pl$
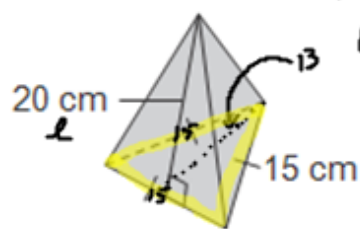
$P = 15(3) = 45$

$L = \frac{1}{2}(45)(20) = 450\, cm^2$

$T = L + B_{\frac{1}{2}bh}$

$T = 450 + \frac{1}{2}(15)(13)$

$T = 450 + 97.5$

$T = 547.5\ cm^2$

2.

11.3 ft

16

16 ft

$L = \frac{1}{2}Pl$
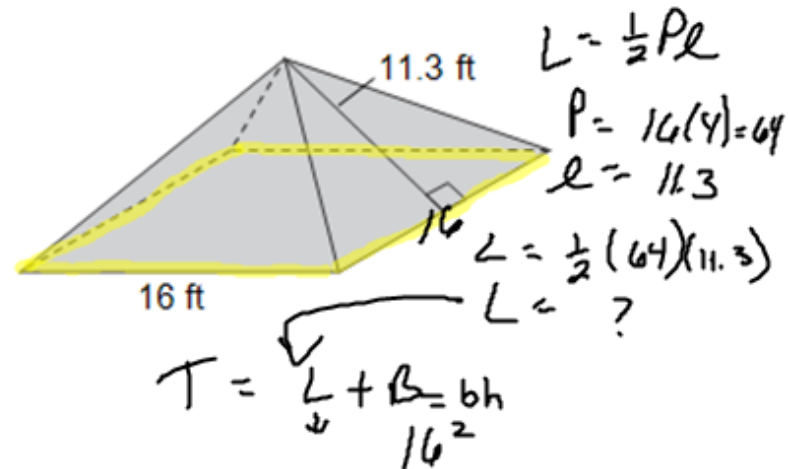
$P = 16(4) = 64$

$l = 11.3$

$L = \frac{1}{2}(64)(11.3)$

$L = \ ?$

$T = \underset{\downarrow}{L} + B = bh$

16^2

3.

ℓ
11.5 cm

11.5 cm

$L = \frac{1}{2}Pl$
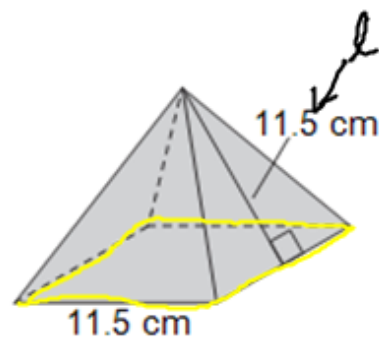
$P = 11.5(4) = 46$

$l = \frac{1}{2}(46)(11.5)$

$L = 264.5$

$T = L + B \rightarrow bh$

$T = 264.5 + (11.5)^2$

$T = 264.5 + 132.3 \rightarrow \boxed{396.8\ cm^2}$

4.

8.7 in
6 in
15 in
ℓ

$L = \frac{1}{2}Pl$
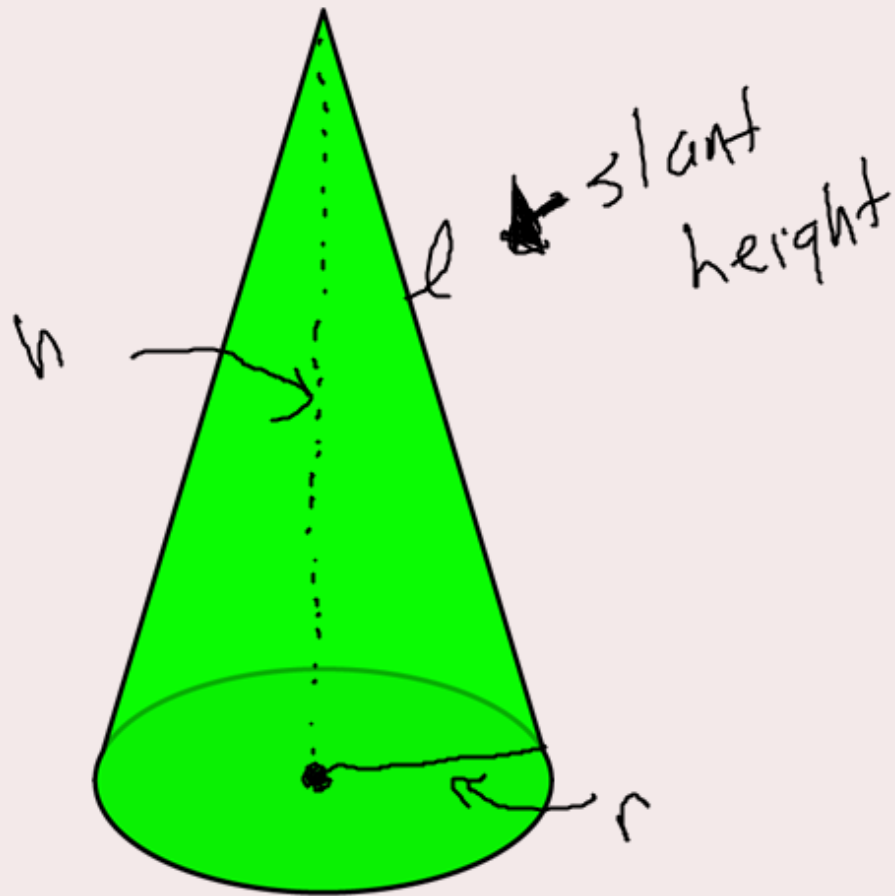
$P = 8.7(5) = 43.5$

$L = \frac{1}{2}(43.5)(15)$

$L = 326.3$

$T = L + B = \frac{1}{2}aP$
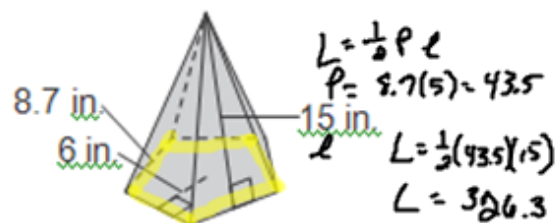
$T = 326.3 + \frac{1}{2}(6)(43.5)$
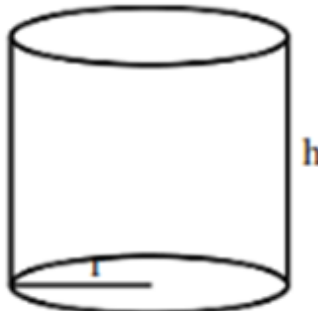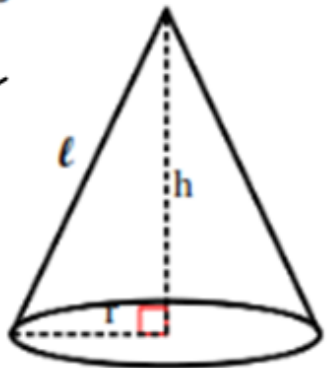
$T = 326.3 + 130.5$

$T = 456.8\ in^2$

Cones

slant
height

ℓ

h

r

Formula Sheet...

Solid	Area	Volume
Cylinder 2 Bases h r	We did yesterday	
Cone 1 Base ℓ h r	$L = \pi r \ell$ $T = L + B$ $T = L + \pi r^2$	

Study Guide, cont....

Find the lateral area and surface area of each cone. Round to the nearest tenth if necessary.

5.

12 cm
ℓ
9 cm

$L = \pi r \ell$
$L = \pi (9)(13)$
$L = 339.3$

r
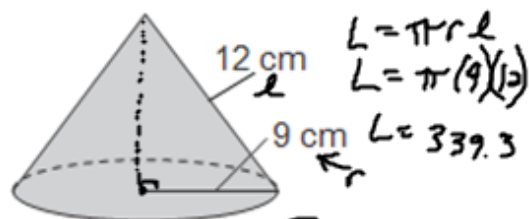
$T = L + B_{\to \pi r^2}$
$T = 339.3 + \pi 9^2$
$T = 339.3 + 254.5$
$T \approx 593.8$

6.

10 ft
ℓ
5 ft
r
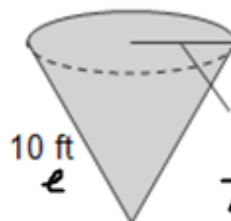
$L = \pi r \ell$
$L = \pi (5)(10)$
$= 157.1 \text{ ft}^2$

$T = L + B_{\pi r^2}$
$T = 157.1 + \pi (5)^2$
$T = 157.1 + 78.5$
$T = 235.6 \text{ ft}^2$

7.

13 cm
5 cm
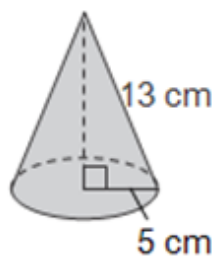
$L = \pi r \ell$
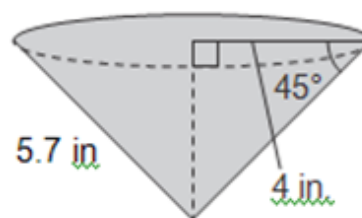$L = \pi (5)(13)$
$L = 204.2 \text{ cm}^2$

$T = L + B$
$T = 204.2 + \pi (5)^2$
$T = 204.2 + 78.5$
282.7 cm^2

8.

45°
5.7 in
4 in.

$L = \pi r \ell$
$L = \pi (4)(5.7)$
$L = 71.6$

$T = L + B$
$T = 71.6 + \pi (4)^2$
$T = 71.6 + 50.3 = 121.8$