10.1 Surface Area of Prisms and Cylinders

<u>Prism:</u>

Pentagonal prism   Triangular prism
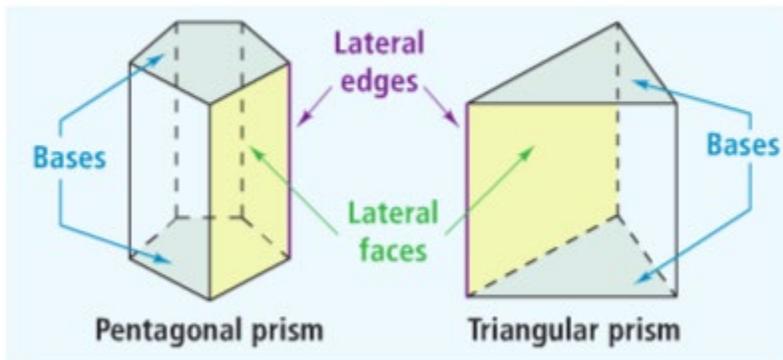
<u>Altitude of a Prism</u>:
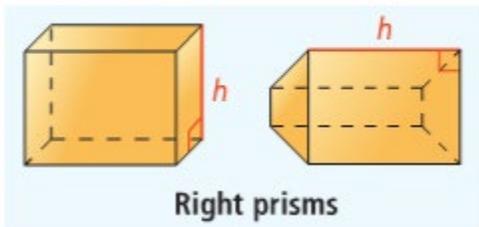
Right prisms
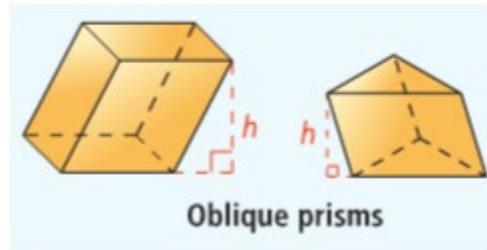
Oblique prisms

<u>Right Prism:</u>   <u>Oblique Prism:</u>

<u>Lateral Area:</u>

<u>Formula:</u>

<u>Surface Area:</u>

Formulas:

ex 1: Find the lateral and surface areas of the following prism.

3 cm   4 cm

6 cm

Cylinder:

Bases

h   h

Right cylinders

Oblique cylinders

h   h

r

h   h   2πr   h

The circumference
of a base is 2πr.

r

B

The area B of a base
is πr².
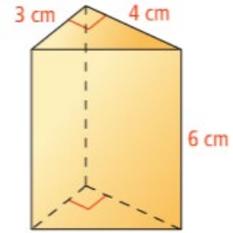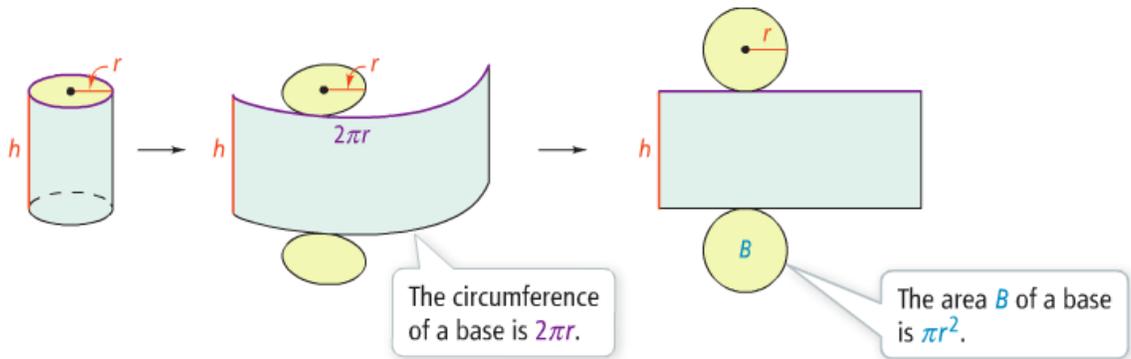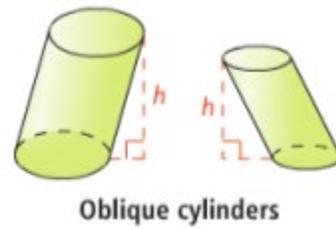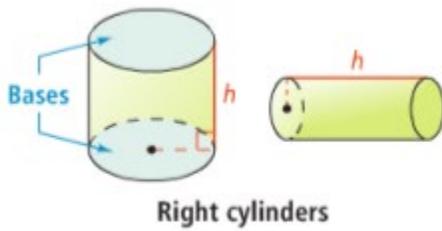
Lateral Area =   Surface Area =

ex 2: Find the lateral and surface areas of the cylinder.

12 m

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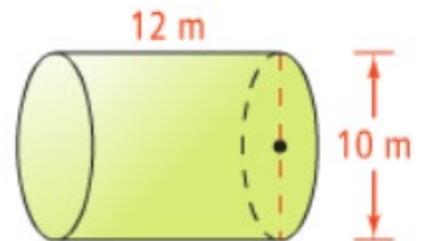
Find the surface area of each figure. Round to nearest tenth.

Ex 3:   Ex 4:

7 in

9 in

4.8 in

8 km

20 km
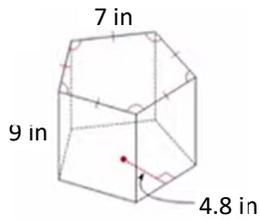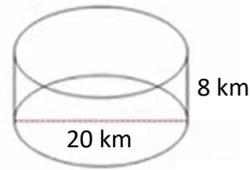
Mr. Sullivan has become tired of all the bullying from Mr. Kelly during his videos. One day he catches him and starts to lower him into a vat of acid. He tells him the only way he can save himself is if he correctly figures out the square feet of paint that Sully used to paint the outside of the vat. The vat has a diameter 6 feet and is 10 feet deep.

Mr. Kelly guesses 30 square feet. Will he survive?

You try.

1)   2)

Summary:

_____

_____

_____

_____

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

1)
4 yd
6 yd
6 yd
6 yd
6 yd
6 yd

2)
5 km   2 km
1.6 km   4 km
6 km
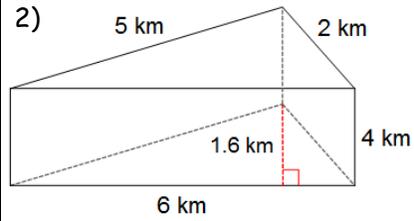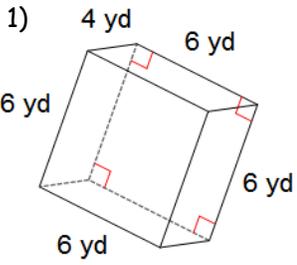
Directions: Find the lateral area. Leave in terms of π and round to the nearest tenth.

3)
10 yd
24 yd

4)
12 m   4 m
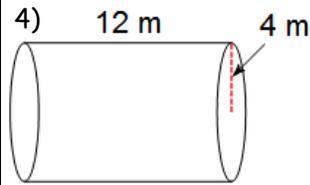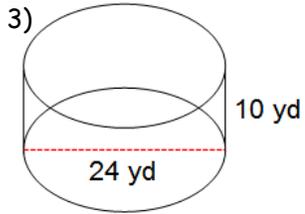
Directions: Find the surface area. Round to the nearest tenth if necessary.

5) 6 cm   10 cm
8 cm   6 cm

6) 4 ft
11 ft
5 ft
11 ft
4 ft

7)
7 m
5 m
6.1 m

8)
11 yd   9 yd
9 yd   9 yd
9 yd
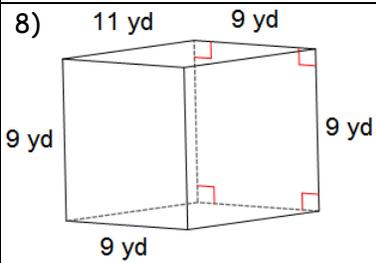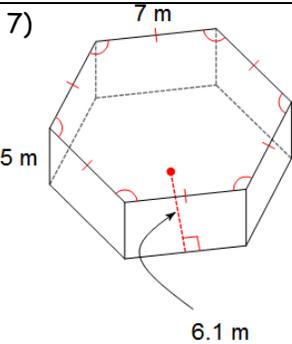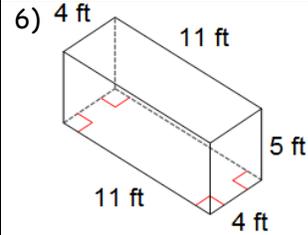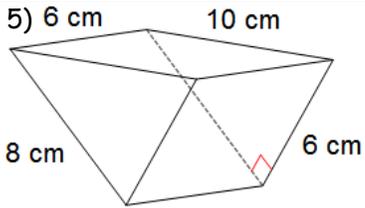
Directions: Find the surface area. Leave in terms of π and round to the nearest tenth.

9)

9 in

16 in

10)   12 mi   5 mi
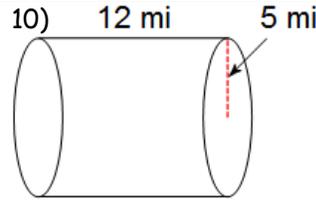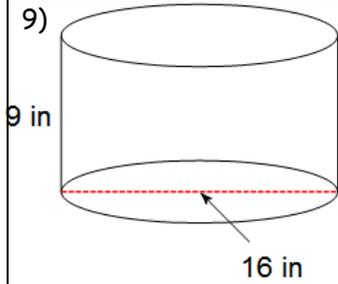
Algebra Review

| Solve: $-2(2k+6)-4 < -13-4k$	Solve: $-2(-3-7v) < 24+8v$	Write the equation of the line of the given graph:
Factor Completely: $27m^2 - 3$	Factor Completely: $40n^2 + 76n + 24$	Solve by graphing: $y = \frac{1}{4}x + 3$ $y = -\frac{3}{2}x - 4$
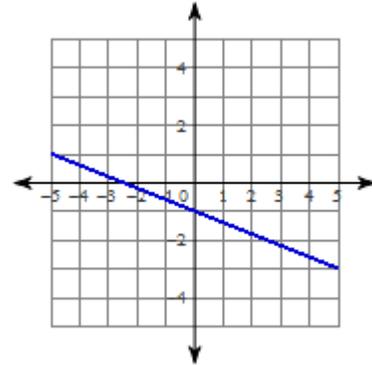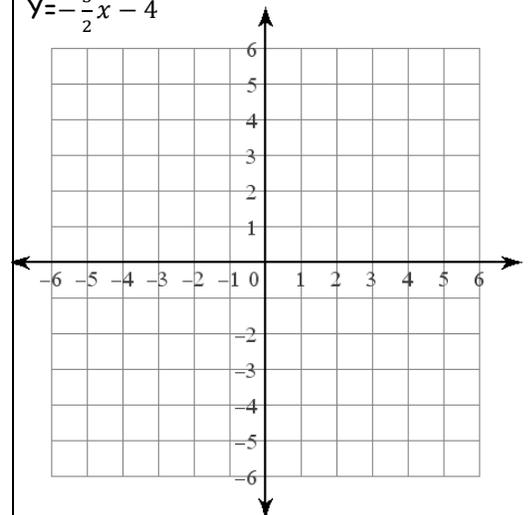
Directions: Find the surface area to the nearest tenth.

1)

10 in   8 in

6 in

10 in

2)

10 m

11 m
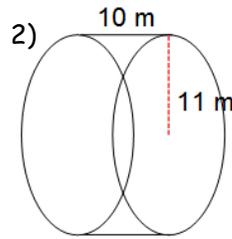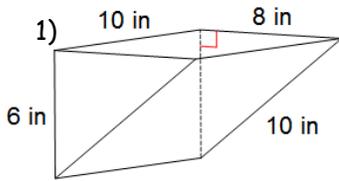
3) Mr. Brust is addicted to Red Bull and has decided that he wants to plaster his room at school with Red Bull cans. He measures a can and finds it is 6.5 inches tall and has a diameter of about 2.5 inches. He decided that he will just recycle the top and bottom since there is no Red Bull logo on them and just use the sides. How many cans will Mr. Brust need to cover his wall that is 20 feet long and 9 feet tall?

4) A Rubik's Cube is a game that involves a cube with six different color sides. A standard Rubik's Cube has sides that are 3 units by 3 units. An advanced Rubik's Cube has sides that are 4 units by 4 units. How much more surface area is there in the advanced Rubik's Cube?
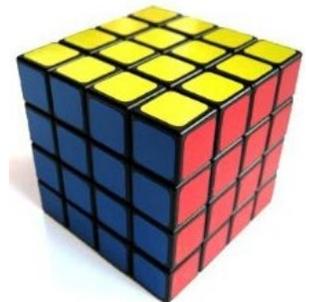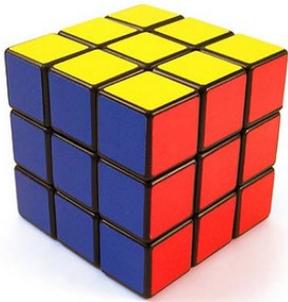
4) Plotting points in 3D involves three coordinates (x, y, z). The origin is at (0, 0, 0).
    a. What are the coordinates of:

        point A   point B

        point C   point D

    b. Find AB

    c. Find BC

    d. Find CD

    e. What is the surface area of the rectangular prism?