Lesson #1: Perimeter and Area of 2D Figures   Date: _____

Learning Goal: We are learning to calculate the perimeter, circumference, and area for common 2D simple and compound shapes.

Welcome back to Mathematics! We will kick off our second half with a unit which you should be familiar with. There will be some new ideas, but overall, this is always a great unit to get back into Math. Let's dive in.

Important Formulas

Perimeter – simply add up all the outside edges, regardless of the shape (not circles!)

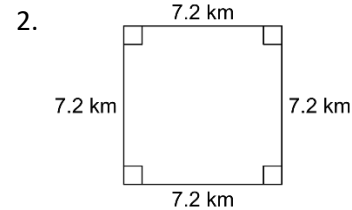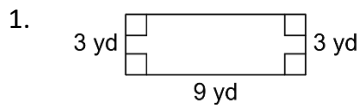Area of a square/rectangle: $A = lw$ Area of a triangle: $A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$
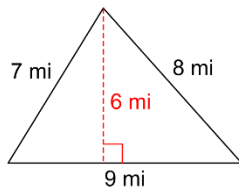
Area of a trapezoid: $A = \frac{(a+b)h}{2}$

Area of a circle: $A = \pi r^2$ (pi = 3.14)   Circumference of a circle: $C = 2\pi r$
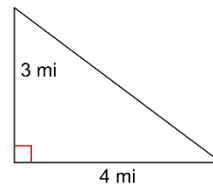
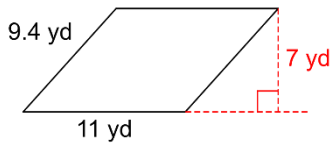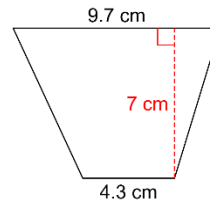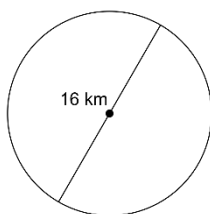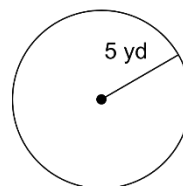**Find the perimeter (if possible) and area of each shape.**

1.
3 yd | 9 yd | 3 yd

2.
7.2 km
7.2 km   7.2 km
7.2 km

3.

7 mi   8 mi
6 mi
9 mi

4.

3 mi
4 mi

5.

9.4 yd
7 yd
11 yd

6.

9.7 cm
7 cm
4.3 cm

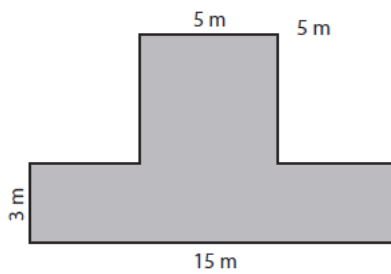**Find the circumference and the area of each circle.**

7.

16 km

8.

5 yd

Use the appropriate formula to find the missing piece.

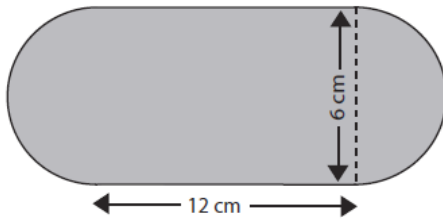9. A triangle has a height of 22*cm* and an area of 143*cm²*. What is the length of the base?

10. A large pizza has an area of 201*in²*. What is the diameter, in inches, of the pizza.

Find the area of the compound figures.
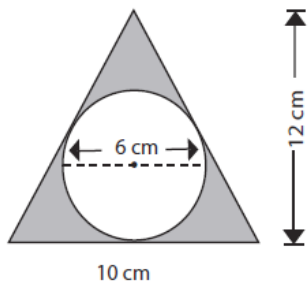
11.

5 m   5 m

3 m

15 m

12.

13.

Success Criteria:
- I can find the perimeter and area of a square, rectangle, triangle, parallelogram, or trapezoid
- I can find the circumference and area of a circle
- I can find the area of compound shapes by breaking them down into simpler shapes
- I can, if given the area, find another missing dimension

Lesson #2: Rectangular and Triangular Prisms   Date: _____

Learning Goal: We are learning to calculate the surface area and volume for common 3D shapes and composite figures.

Some Strategies
- When looking at surface area
  - Draw the net or label each side of the shape with letters (so you don't forget any!)
  - Find the area of each 2D shape by itself, using yesterday's formulas, then add all of them together
- When looking at volume
  - Be careful what you pick as the base
  - Divide composite objects into smaller simple 3D shapes and find the volume of each, then add all of them together.
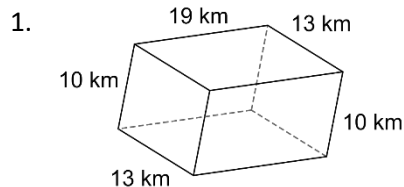

Important Formulas

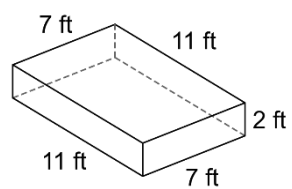Volume is always the "area of the base" × "the height"

Volume of a rectangular prism: $V = lwh$ Volume of a triangular prism: $A = \frac{1}{2}bhl$ OR $A = \frac{bhl}{2}$
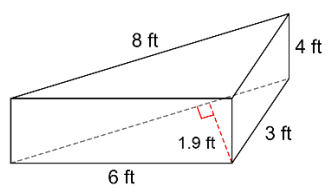

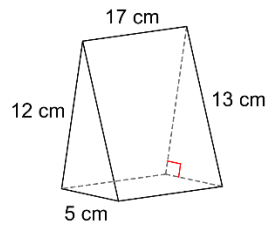**For each figure, draw the net, then calculate the surface area and the volume.**

1.

2.

7 ft

11 ft

11 ft

2 ft

7 ft

3.

8 ft

4 ft

1.9 ft

3 ft

6 ft

4.

17 cm

12 cm

13 cm

5 cm

Use the appropriate formula to solve for the missing measurement.

5. A rectangular prism has a volume of 5940cm^2 with a height of 15cm and a length of 33cm. What is the width of the box?

6. Calculate the surface area and the volume of the composite figure.
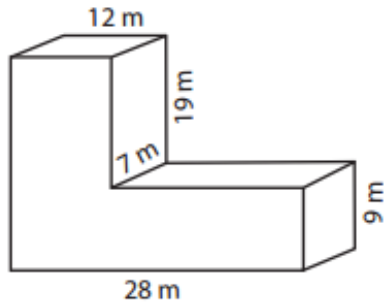
Success Criteria:
- I can find the surface area of prisms by adding up the areas of each side
- I can find the volume of prisms by using the appropriate formula (area of the base × height)
- I can find the surface area of composite figures by breaking it down into smaller parts and finding the surface area of each part
- I can find the volume of composite figures by breaking it down into smaller parts and finding the volume of each part
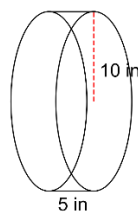
Learning Goal: We are learning to calculate the surface area and volume of cylinders and cones.

For each figure, draw the net, then calculate the surface area and the volume.

1.

11 m

6 m

2.

10 in

5 in

3.

14 km

7 km

4.

20 cm

22.4 cm
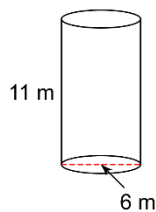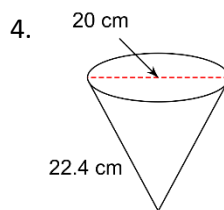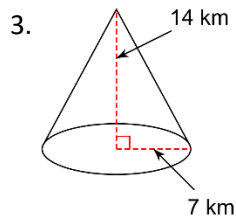
Use the appropriate formula to solve for the missing measurement.

5. A Cylinder has a volume of 2769.48cm^3 with a height of 18cm. What is the length of the radius?
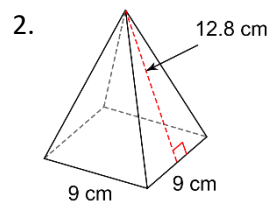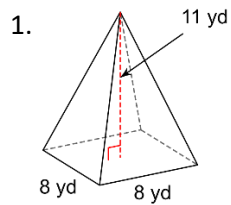
Success Criteria
- I can draw the net of a cylinder or cone
- I can use the appropriate formula to find the surface area or volume of a cone or cylinder
- If given the volume of a cone or cylinder, I can rearrange the equation to find the radius or height.

Learning Goal: We are learning to calculate the surface area and volume of square pyramids and spheres.

Like our earlier shapes, we can figure out formulas for surface area and volume by looking at the nets of some of these shapes. Not as helpful with spheres though…
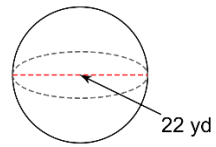
For each figure, draw the net, then calculate the surface area and the volume.

1.

11 yd

8 yd   8 yd

2.

12.8 cm

9 cm   9 cm

3.

7 cm

4.

22 yd
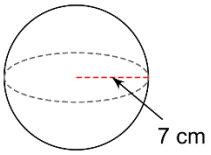
Success Criteria:
- I can draw the net of a square pyramid
- I can use the appropriate formula to find the surface area or volume of a square pyramid or sphere