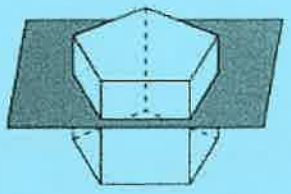
enVision – Geometry
Cones, Pyramids, Prisms, Spheres, OH MY!

Name: Solutions
Date: _____ Period: _____

1.) A plane intersects the prism shown parallel to the base. Which best describes the cross section?

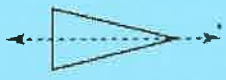
a.) rectangle c.) trapezoid

b.) pentagon d.) parallelogram



2.) Identify what 3D figure will be made by rotating the 2D polygon along the given axis of rotation.

a.)



cone

b.)

cylinder

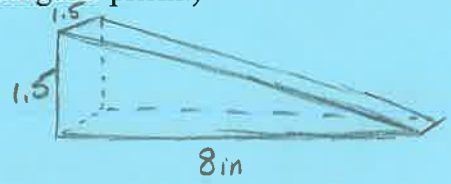
3.) Fill in the blank…

Euler's formula states that the sum of the number of faces and vertices is equivalent to 2 more than the number of its edges.

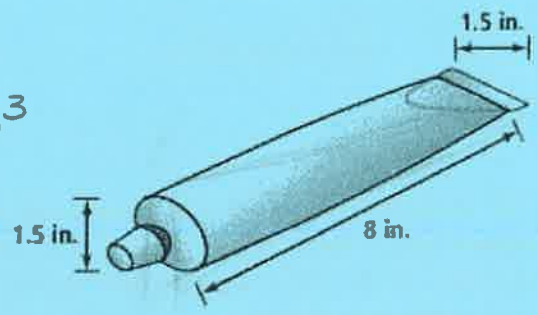
4.) Tavon must add 1 teaspoon of conditioner for every 5 gallons of water in cylindrical his aquarium. If d =14 inches and h = 25 inches, how many teaspoons should he add? Round down to a whole number.
(1 gallon = 231 in^3)

≈ 5.37 teaspoons.

5.) A tube of toothpaste shown costs $3.45. Estimate the price per cubic inch of toothpaste. (Model the tube of toothpaste as a right triangular prism.)



cost ≈ $.38 per in^3



6.) Find the surface area of the spheres with the following radius or diameter. Round to the nearest tenth.

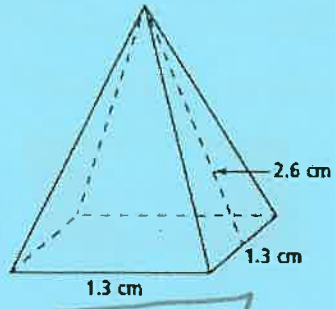
a.) d = 8.2 ft
r = 4.1
211.2 ft^2

b.) r = 9cm
1017.9 cm^2

c.) d = 2π cm
r = 1π
124.0 m^2

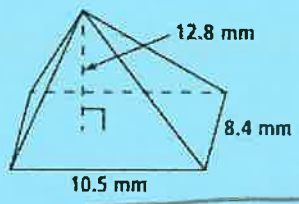
7.) Find the volume of the following figure. Round to the nearest tenth.

a.



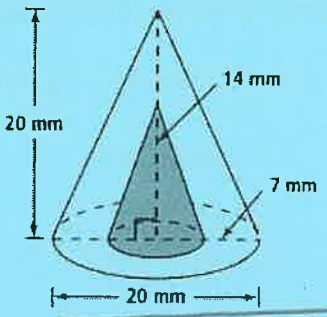
$1.4 cm^3$

b.)



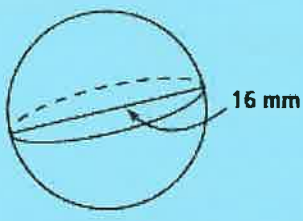
$376.3 mm^3$

c.)



$1962.4 mm^3$

d.)



$V = 2,144.7 mm^3$

e.)

$1,753.4 in^3$

8.) A pile of snow is plowed into the shape of a right cone. How many trucks with a capacity of 10 yd^3 per truck will be needed to move the pile?

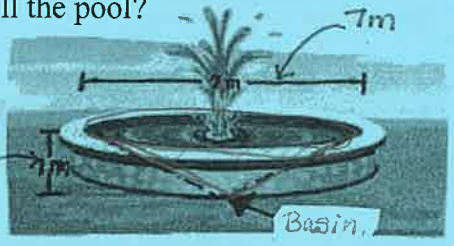
6 trucks.

9.) The basin beneath a fountain is a right cone that is 7m across and 1m deep at the center. After the fountain is cleaned, the pool is refilled a rate of 300 L/min. One cubic meter is 1000L. How long does it take to refill the pool?

$V_{cone} = \frac{1}{3}(\pi r^2)h$

$= \frac{1}{3}(\pi(3.5)^2(1)$

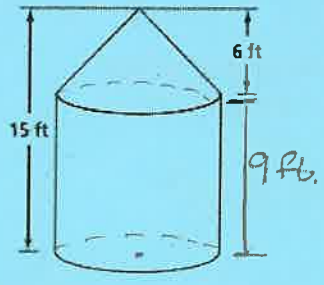
$= 12.82 m^3$



$12.82(1000) = 12821.67$

$12821.67 \div 3 \approx$ 43 min.

10.) A farmer plans to build a small silo shown to store chicken feed. What is the circumference of the base of the silo if it can hold a maximum of 132 cubic feet of feed?



$\pi r^2(9) + \frac{1}{3}\pi r^2(6) = 132$

$9\pi r^2 + 2\pi r^2$

$\frac{11\pi r^2}{11} = \frac{132}{11}$

$\frac{\pi r^2}{\pi} = \frac{12}{\pi}$

$\sqrt{r^2} = \sqrt{\frac{12}{\pi}}$ $r \approx 1.95$

$C = 2\pi r$

$C = 2\pi(1.95) \approx$ 12.25ft

11.) A spherical scoop of ice cream with a diameter of 8 cm is in a cone 18 cm tall with a base diameter of 8 cm. If all the ice cream melts into The cone, what percent of the cone will be filled?

$V_{sphere} = 85\frac{1}{3}\pi$

$V_{cone} = 96\pi$

$85\frac{1}{3}\pi \div 96\pi \approx$ 89%