Hundredths

Name: _____ Date: _____ Hour: ___Alg 1____

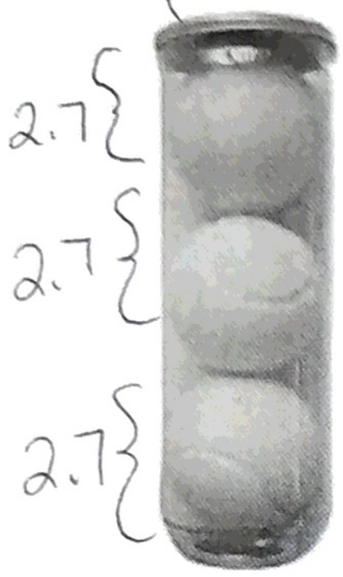
Unit 6 Day 8: Review

Focus Question: What do I remember about shapes that use circles as one of their faces?

See next pages for work

Do work on your own paper.

1. A tennis ball canister is shown below. The diameter of each tennis ball is 2.7 inches.



$r = \frac{2.7}{2}$

$r = 1.35$

Volume

a. How much space in the canister is left over after the tennis balls are put in the container?

$= 4.92075\pi \text{ in}^3$

$\approx 15.46 \text{ in}^3$

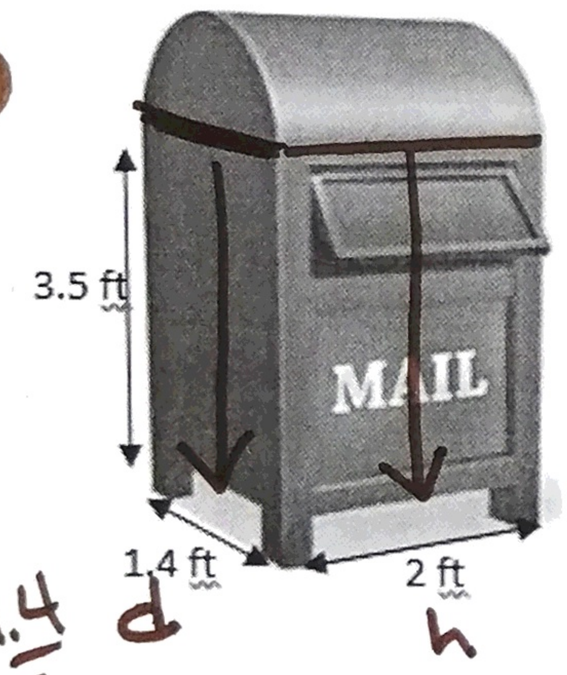
b. How much felt is used to make the tennis balls?

Surf. area

$= 21.87\pi \text{ in}^2$

$\approx 68.71 \text{ in}^2$

2. George decided to do an April Fool's prank and spray insulation foam into the city's mail drop box until it was full so that no one could put mail in the slot.



a. If one can of spray foam expands to fill 1.5 cubic feet, how many can's does George need to buy?

Vol.

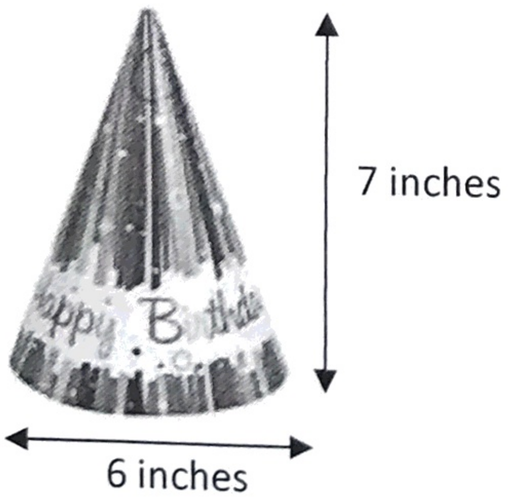
8 cans

b. As a punishment, George had to repaint all the city's mail drop boxes. The city has 6 of them. How much painting did George have to do?

→ Surf. area

178.2 ft^2

3. Tiffany bought a package of 8 party hats like those shown below.



a. How much cardboard was used to make the package of hats?

Surf. Area

$= 24\pi\sqrt{58} \text{ in}^2$

$\approx 574.22 \text{ in}^2$

b. The guests filled the cones with gumballs to take home as a party favor. If a single gumball has a radius of 1 in, how many gumballs will each guest get?

Vol.

15 gumballs

① (a) V_{cy} = 1 cylinder V_{sph} = 3 spheres

$V_{cy} = \pi r^2 h$

$= \pi (1.35)^2 \cdot 8.1$

$= \pi\, 1.8225 \cdot 8.1$

$= 14.76225\pi \text{ in}^3$

$V_{sp} = \frac{4\pi r^3}{3} \cdot 3$

$V = 4\pi (1.35)^3$

$= 4\pi \cdot 2.460375$

$= 9.8415\pi \text{ in}^3$

left over 14.76225π

$- 9.8415\pi$

$\boxed{= 4.92075\pi \text{ in}^3}$

or $\approx 15.46 \text{ in}^3$

(b) S_{sp} = 3 spheres

$S_{sp} = 4\pi r^2 \cdot 3$

$= 12\pi (1.35)^2$

$= 12\pi (1.8225)$

$\boxed{= 21.87\pi \text{ in}^2}$

or $\approx 68.71 \text{ in}^2$

(2) (a) V = rect prism

$V = lwh$

$V = 1.4(2)(3.5)$

$V = 9.8\ ft^3$

V = ½ cylinder

$V = \frac{\pi r^2 h}{2}$

$V = \frac{\pi (0.7)^2 \cdot 2}{2}$

$V = 0.49\pi\ ft^3$

Total Volume $= 9.8 + 0.49\pi$

Buy $= \frac{(9.8 + 0.49\pi)}{1.5} \approx 7.56$ cans

So buy 8 cans

(b) See day 3 #5 for 1 mailbox $\approx 29.7\ ft^2$

6 mailboxs $29.7 \cdot 6 \approx 178.2\ ft^2$

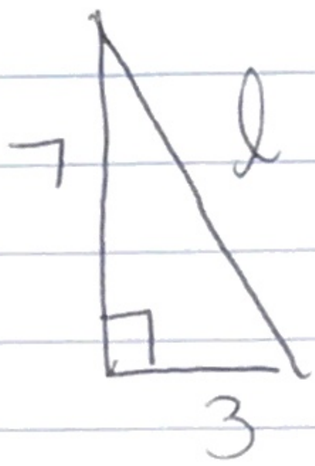
(3)(a) $S_{co} = (\cancel{\pi r^2} + \pi r l) \cdot 8$ ← 8 hats in a package

bottom is open

$= \pi(3)(\sqrt{58}) \cdot 8$

$= 24\pi\sqrt{58}\ in^2$

or $\approx 574.22 in^2$



$a^2 + b^2 = c^2$
$3^2 + 7^2 = l^2$
$9 + 49 = l^2$
$\sqrt{58} = \sqrt{l^2}$

$l = \sqrt{58}$

(b) $V_{co} = \frac{\pi r^2 h}{3}$ $V_{sp} = \frac{4\pi r^3}{3}$

$= \frac{\pi(3)^2 \cdot 7}{3}$ $= \frac{4\pi(1)^3}{3}$

$= \pi \cdot 3 \cdot 7$ $= \frac{4\pi}{3} in^3$

$= 21\pi\ in^3$

How many fit in the cone $21\pi \div \frac{4\pi}{3}$

$21 \div \frac{4}{3}$

$21 \cdot \frac{3}{4} = \frac{63}{4} \rightarrow 15.75$

so 15 fit