Name: _____ **Date:** _____ **HW #8 Substitution**

5

Evaluate each of the following when $x = 5$, $b = -3$, and $m = \frac{2}{5}$

1) $2b^2 + mx$

$2(-3)^2 + (\frac{2}{5})(5)$

$2(9) + 2$

$18 + 2$

$\boxed{20}$

2) $4mb - b^2$

$4(\frac{2}{5})(-3) - (-3)^2$

$-12(\frac{2}{5}) - 9$

$-\frac{24}{5} - 9 \Rightarrow -\frac{24}{5} - \frac{45}{5} \Rightarrow \boxed{-\frac{69}{5}}$

3) $b - m^2 + x$

$(-3) - (\frac{2}{5})^2 + (5)$

$-3 - \frac{4}{25} + 5 \Rightarrow -3 + 5 - \frac{4}{25}$

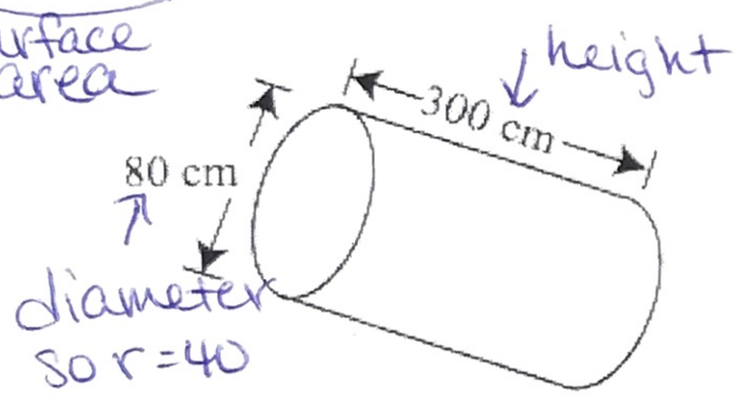
$2 - \frac{4}{25}$

$\frac{50}{25} - \frac{4}{25} = \boxed{\frac{46}{25}}$

Kinetic Energy	Surface area of a cylinder	Volume of a cylinder	Volume of a cone	Area of a circle
k is kinetic energy in joules m is mass in kilograms v is velocity in meters per second	S is surface area in square units $\pi \approx 3.14$ r is radius in units h is height in units	V is volume in cubic units $\pi \approx 3.14$ r is radius in units h is height in units	V is volume in cubic units $\pi \approx 3.14$ r is radius in units h is height in units	A is area in square units $\pi \approx 3.14$ r is radius in units
$k = \frac{1}{2}mv^2$	$S = 2\pi r^2 + 2\pi rh$	$V = \pi r^2 h$	$V = \frac{\pi r^2 h}{3}$	$A = \pi r^2$

A cylindrical satellite, shown below, will be covered entirely in gold foil to reflect sunlight.

surface area



so $r = 40$

Approximately how many square centimeters of foil will be required to cover the entire surface area of the satellite?

$S = 2\pi r^2 + 2\pi rh$

$S \approx 2(3.14)(40)^2 + 2(3.14)(40)(300)$

$S \approx 6.28(1600) + (6.28)(12000)$

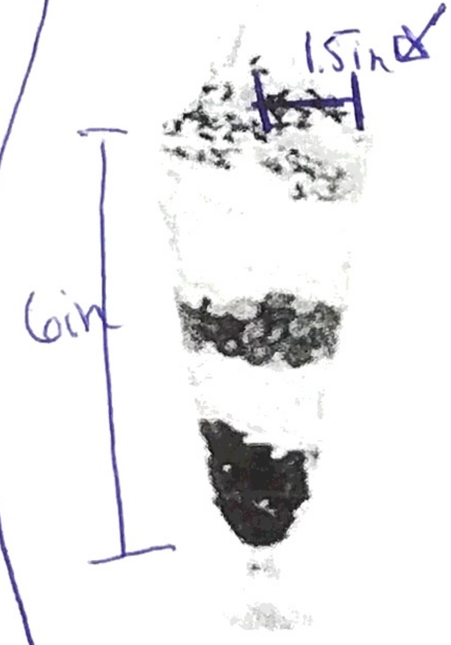
$S \approx 10048 + 75360$

$\boxed{S \approx 85408 \text{ square cm}}$

Maggie and her little brother both got a parfait cup filled to the brim at TCBY as shown below. **Approximately** how much frozen yogurt did they eat together if the height is 6 inches and the radius is 1.5 inches?

fill

volume



cone shape

$V = \frac{\pi r^2 h}{3}$

$V \approx \frac{3.14(1.5)^2(6)}{3}$

$V \approx \frac{3.14(2.25)(6)}{3}$

$V \approx \frac{42.39}{3}$

$V \approx 14.13$ cubic inches for 1 parfait cup

2 of them

so $14.13(2) = \boxed{28.26 \text{ cubic inches}}$