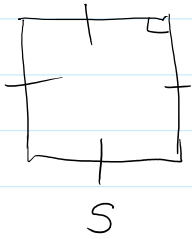
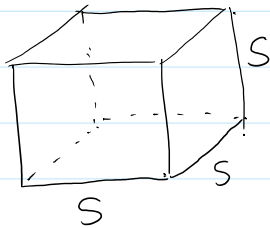


Problem Solving with Powers

Tuesday, October 1, 2019 10:11 AM



Square
 Area = s^2
 Perimeter = $4s$



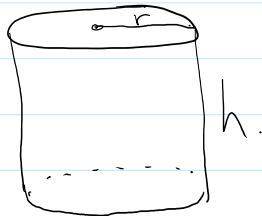
Cube
 Volume = s^3
 Surface Area = $6s^2$

A cube has a side length of 6 cm.
 Find its volume + surface area.

Volume = 6^3
 $= 216 \text{ cm}^3$

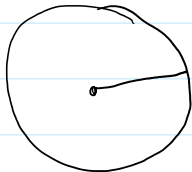
Surface Area = $6 \cdot 6^2 = 6^3$
 $= 216 \text{ cm}^2$

$r = \text{radius}$ $h = \text{height}$

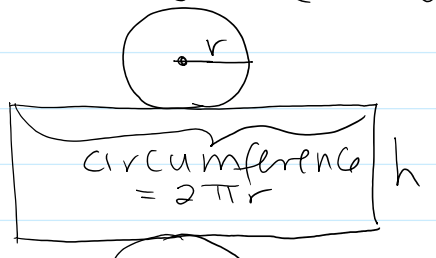
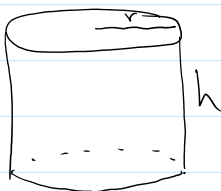


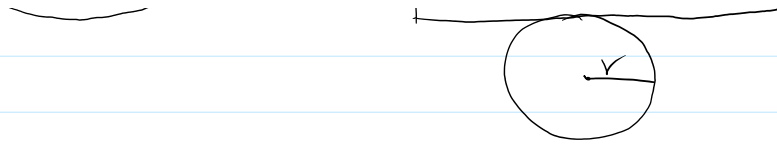
Volume = area base \times height
 $= \pi r^2 \cdot x h.$
 $= \pi r^2 h.$

circle



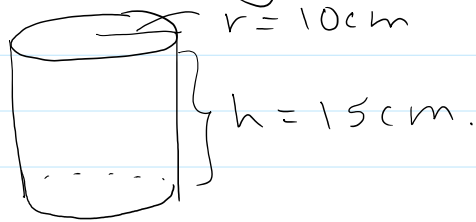
Area = πr^2 Circumference = $2\pi r$
 (always use $\pi = \pi d$
 button on calculator.)





$$\text{Surface Area} = 2 \text{ circles} + 1 \text{ rectangle} \\ = 2\pi r^2 + 2\pi r h.$$

Find the volume + surface area of the following cylinder



$$V = \pi r^2 h \\ = \pi (10)^2 (15) \\ = 4712.4 \text{ cm}^3$$

$$SA = 2\pi r^2 + 2\pi r h \\ = 2\pi (10)^2 + 2\pi (10)(15) \\ = 1570.8 \text{ cm}^2$$

Eg In Mrs. Jakobson's yard there are 50 mosquitos. The number of mosquitos doubles every day. How many mosquitos in her yard after 1 week?

Day 1	2	3	7
50	100	200	
	x 2	x 2		

$$50 \times 2^6 = 50 \times 64 = 3200$$

There are 3200 mosquitos in Mrs. J's yard after 1 week.

Try: The deer population in Nanaimo doubles every year. If there were 1200 deer in 2016 how many will there be in 2020 and 2025?

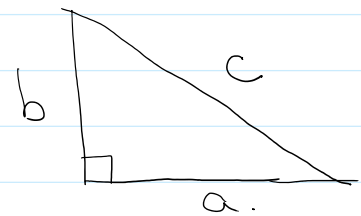
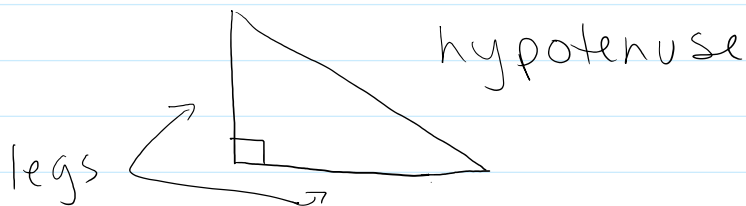
Year	2016	17	18	19	20
Deer.	1200	2400			
		x2	x2	x2	x2

$$1200 \times 2^4 = 19,200 \text{ deer in 2020}$$

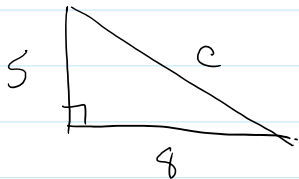
$$1200 \times 2^9 = 614,000 \text{ deer in 2025.}$$

or $19,200 \times 2^5$

Pythagorean Theorem



$$a^2 + b^2 = c^2$$

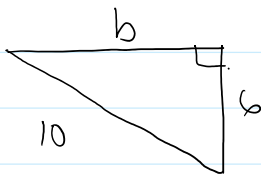


$$5^2 + 8^2 = c^2$$

$$25 + 64 = c^2$$

$$89 = c^2$$

$$c = \sqrt{89} = 9.4$$



$$6^2 + b^2 = 10^2$$

$$b^2 = 10^2 - 6^2$$

$$b^2 = 100 - 36$$

$$b^2 = 64$$

$$b = \sqrt{64} = 8$$