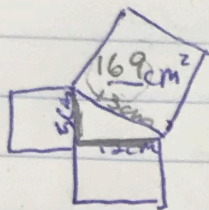


3.4 Using Exponents to Solve Problems

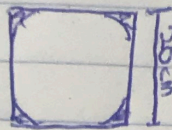
Ex 1: Use Formulas to solve problems

a) What is the surface area of a cube with a side length of 4cm?

b)



c)



What is the area of the shaded region?

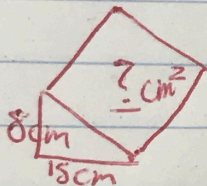
$$\begin{aligned} \text{a) } & 6s^2 \\ & = 6(4^2) \\ & = 6(16) \\ & = 96\text{cm}^2 \end{aligned}$$

$$\begin{aligned} \text{b) } & a^2 + b^2 = c^2 \\ & 5^2 + 12^2 = c^2 \\ & 25 + 144 = c^2 \\ & \sqrt{169} = c \\ & 13 = c \end{aligned}$$

$$\begin{aligned} \text{c) } & \text{Area}_{\square} - \text{Area}_{\circ} = \text{Shaded} \\ & \rightarrow s^2 - \pi r^2 = \text{shaded} \\ & 20^2 - \pi 10^2 = \text{shaded} \\ & 400 - 314 = \text{shaded} \\ & = 86\text{cm}^2 \end{aligned}$$

SYK:

a)



b) Surface Area of cube
side length = 3m

Ex 2: Develop a Formula to solve a Problem.

A dish holds 100 bacteria, it triples in number every hour. How many after...

a) 1 hour

$$\begin{aligned} & 100 \times 3 \\ & = 300 \text{ bacteria} \end{aligned}$$

b) 5 hours

$$\begin{aligned} & 100 \times 3 \times 3 \times 3 \times 3 \times 3 \\ & 100 \times 3^5 \\ & = 24,300 \text{ bacteria} \end{aligned}$$

c) n hours

$$100(3^n)$$

SYK: Bacteria doubles every hour. 50 to start.

a) 3

b) 5

c) t

