

## 1.4.1 Rewriting Equations and Formulas

Volume of a Cone:

Solve for 'h':  $V = \frac{1}{3}\pi r^2 h$

$$\frac{V}{\pi r^2} = \frac{\frac{1}{3}\pi r^2 h}{\pi r^2}$$

$$3 \left( \frac{V}{\pi r^2} \right) = 3 \left( \frac{1}{3} h \right)$$

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

$$\frac{V}{\frac{1}{3}\pi r^2} = \frac{\frac{1}{3}\pi r^2 h}{\frac{1}{3}\pi r^2}$$

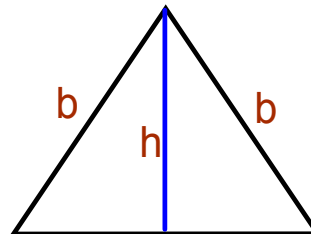
$$\frac{V}{\frac{1}{3}\pi r^2} = h$$

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

The formula for the height 'h' of an equilateral triangle is  $h = \frac{\sqrt{3}}{2}b$  where 'b' is the length of a side.

Write a formula for the area of an equilateral triangle in terms of the following:

- the length of a side only.
- the height only.



$$\frac{\sqrt{3}}{2}b = \frac{\sqrt{3}}{2}b$$

$$\frac{2h}{\sqrt{3}} = b$$

$$A = \frac{1}{2}bh$$

$$a) A = \frac{1}{2}b \left( \frac{\sqrt{3}}{2}b \right)$$

$$A = \frac{\sqrt{3}}{4}b^2$$

$$b) A = \frac{1}{2}bh$$

$$= \frac{1}{2} \left( \frac{2h}{\sqrt{3}} \right) h$$

$$= \frac{2h^2}{2\sqrt{3}} = \frac{h^2}{\sqrt{3}}$$

**Assignment:**

**p. 29**

**# 36-42 even**

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Quiz 1.1-1.4