

Literal Equations HW

- 1 Boyle's Law involves the pressure and volume of gas in a container. It can be represented by the formula $P_1V_1 = P_2V_2$. When the formula is solved for P_2 , the result is

$$\frac{P_1V_1}{V_2} = \frac{P_2V_2}{V_2}$$

$$\boxed{\frac{P_1V_1}{V_2} = P_2}$$

- 2 Michael borrows money from his uncle, who is charging him simple interest using the formula $I = Prt$. To figure out what the interest rate, r , is, Michael rearranges the formula to find r . His new formula is r equals

$$\frac{I}{Pt} = \frac{Prt}{Pt}$$

$$\boxed{\frac{I}{Pt} = r}$$

- 3 The equation for the volume of a cylinder is $V = \pi r^2 h$. The positive value of r , in terms of h and V , is

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

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

$$\rightarrow \boxed{\sqrt{\frac{V}{\pi h}} = r}$$

- 4 The formula for the volume of a cone is $V = \frac{1}{3}\pi r^2 h$. The radius, r , of the cone may be expressed as

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

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

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

$$\rightarrow \boxed{\sqrt{\frac{3V}{\pi h}} = r}$$

- 5 The distance a free falling object has traveled can be modeled by the equation $d = \frac{1}{2}at^2$, where a is acceleration due to gravity and t is the amount of time the object has fallen. What is t in terms of a and d ?

$$2. d = \frac{1}{2}at^2$$

$$\frac{2d}{a} = \frac{at^2}{a}$$

$$\sqrt{\frac{2d}{a}} = \sqrt{t^2} \rightarrow \boxed{\sqrt{\frac{2d}{a}} = t}$$

- 7 The formula for the sum of the degree measures of the interior angles of a polygon is $S = 180(n - 2)$. Solve for n , the number of sides of the polygon, in terms of S .

$$S = 180(n - 2)$$

$$S = 180n - 360$$

$$\begin{array}{r} +360 \qquad +360 \\ \hline S + 360 = 180n \\ \frac{S + 360}{180} = \frac{180n}{180} \end{array}$$

$$\boxed{\frac{S + 360}{180} = n}$$

$$\boxed{\frac{S}{180} + 2 = n}$$

- 8 Solve the equation below for x in terms of a .

$$4(ax + 3) - 3ax = 25 + 3a$$

$$\underline{4ax} + 12 - \underline{3ax} = 25 + 3a$$

$$\begin{array}{r} ax + 12 = 25 + 3a \\ -12 \quad -12 \\ \hline ax = 13 + 3a \\ \frac{ax}{a} = \frac{13 + 3a}{a} \end{array}$$

$$\boxed{x = \frac{13 + 3a}{a}}$$

$$\boxed{x = \frac{13}{a} + 3}$$