Literal Equations (Unit 4)

Name: _____ **Date:** _____

1. Solve: $F = \dfrac{mv^2}{gr}$; for v.

   A. $gr\sqrt{\dfrac{F}{m}}$ B. $gr\sqrt{Fm}$ C. $\sqrt{\dfrac{Fgr}{m}}$ D. $\dfrac{\sqrt{Fgr}}{m}$

2. Solve: $V = \dfrac{1}{3}\pi r^2 h$; for r.

   A. $\dfrac{3\sqrt{V}}{\pi h}$ B. $3\sqrt{\dfrac{V}{\pi h}}$ C. $\dfrac{\sqrt{3V}}{\pi h}$ D. $\sqrt{\dfrac{3V}{\pi h}}$

3. Solve: $L = \dfrac{25\ell^2}{t^4}$; for ℓ.

   A. $\dfrac{t^2}{5}\sqrt{L}$ B. $\dfrac{t^4}{25}\sqrt{L}$ C. $\dfrac{\sqrt{Lt^4}}{25}$ D. $5t^2\sqrt{L}$

4. Given the expression: $A = P + Prt$; for P.

   A. $A + Art$ B. $A - Prt$ C. $\dfrac{A}{1+rt}$ D. $\dfrac{1+rt}{A}$

5. Given the expression: $A = 2\ell w + 2wh + 2\ell h$; for h.

   A. $\dfrac{A - \ell w}{w + \ell}$ B. $\dfrac{A}{2} - \dfrac{\ell w}{w + \ell}$

   C. $\dfrac{Aw\ell}{w + \ell}$ D. $\dfrac{A - 2\ell w}{2w + 2\ell}$

6. Given the formula $A = 2\pi r(r + h)$, solve for h.

   A. $h = \dfrac{A - 2\pi r^2}{2\pi r}$ B. $h = \dfrac{A - r}{2\pi r}$

   C. $h = A(2\pi r^2) - r$ D. $h = A(2\pi r) - r$

7. Oceanographers use a quantity known as *shoreline development* to describe and categorize bodies of water. Shoreline development, D, measures how closely a body of water resembles a circle. Its formula is:

   $$D = \frac{L}{2\sqrt{\pi A}}$$

   where L is the shoreline length and A is the area of the body of water. Solve this formula for A.

   A. $A = \dfrac{L^2}{4\pi D^2}$ B. $A = \dfrac{\pi L^2}{4D^2}$

   C. $A = \dfrac{4\pi D^2}{L^2}$ D. $A = \sqrt{\dfrac{L^2}{4\pi D^2}}$

8. The diameter of a wire when a heavy object is suspended satisfies the following relationship:

   $$d = 2\sqrt{\frac{w\ell}{\pi ES}}$$

   where S is the amount of stretch, w is the weight of the object, ℓ is the original length of the wire, and E is a coefficient that is specific to the type of metal. Solve the equation for ℓ.

   A. $\ell = \dfrac{4w}{\pi d^2 ES}$ B. $\ell = \dfrac{\pi d^2 ES}{4w}$

   C. $\ell = \dfrac{4w}{\pi\sqrt{d}ES}$ D. $\ell = \dfrac{w}{4\pi d^2 ES}$

9. Solve for x in terms of y: $y = \dfrac{2x + 7}{x - 3}$

10. Solve the equation $R = \dfrac{ST}{S + T}$ for S.