Name: Date: Period:

A literal equation is an equation that has several letters or variables. For example, the formula for the area of a circle, $A=\pi r^2$ is a literal equation. To solve a literal equation in terms of one of the variables, we use what we know about solving equations to **rearrange and isolate** the variable we are solving for. Keep in mind, to isolate the unknown variable, ask "what is it joined to?" and "how is it joined?", then perform the inverse operation* to both sides as a whole.

*Inverse Operations:	Addition and Subtraction	Multiplication and Division	Square and Square Root

Examples:

1. $ax = b$ for x

$\frac{ax}{a} = \frac{b}{a}$ Divide both sides by a

$x = \frac{b}{a}$

2. $x + a = 7$ for x

$x + a = 7$

$-a \quad -a$ Subtract a from both sides

$x = 7 - a$

3. $9x - 24a = 6a + 4x$ for x

$9x - 24a = 6a + 4x$

$-4x \qquad -4x$ Move all x's to one side and combine LIKE terms

$5x - 24a = 6a$

$+24a \quad +24a$

$\frac{5x}{5} = \frac{30a}{5}$

$x = 6a$

4. $\frac{x}{r} = v$ for x

$\frac{x}{r} = \frac{v}{1}$ Rewrite as a proportion

$x = rv$ Cross multiply

$x = rv$

5. $A = \frac{1}{2} bh$ for h

$\frac{A}{1} = \frac{bh}{2}$ Rewrite moving bh out of 'no man's land' and creating a proportion

$\frac{2A}{b} = \frac{bh}{b}$ Cross multiply then divide by b

$h = \frac{2A}{b}$

Solve each equation for the indicated variable. Show all your work in your notebooks.

1.	$3x - e = r$ for x	2.	$r + sx = t$ for x
3.	$m = 2(x + n)$ for x	4.	$4x - 5c = 3c$ for x
5.	$A = 6h$ for h	6.	$L = c - s$ for c
7.	$D = rt$ for t	8.	$2s = n(a + 1)$ for a
9.	$5j + s = t - 2$ for t	10.	$P = 2a + b$ for b
11.	$h + p = 3(k - 8)$ for k	12.	$P = \frac{R-C}{N}$ for R

Please consider the following problems as there is an extra step involved:

13. $jx + d = c - kx$ for x

$jx + d = c - kx$

$+kx \qquad +kx$ move all x's to one side

$jx + kx + d = c$

$-d \quad -d$

$jx + kx = c - d$

*Extra step…since the left side each have an x in common, reverse distribute to isolate the x, then divide by (j + k).

$\frac{x(j + k)}{(j + k)} = \frac{c - d}{(j + k)}$

$x = \frac{c-d}{(j+k)}$

14. $fgx = 3h(e - 2x)$ for x