

## Essential Skills: Algebra Second OPTIONAL Prac Date \_\_\_\_\_ Period \_\_\_\_\_

**Solve each equation.**

1)  $120 = -4(-6 - 4x)$

2)  $5(4x + 3) - (1 + 6x) = 1 + 4x + x + 4$

**Solve each equation by factoring.**

3)  $14p^2 + 11p + 2 = 0$

4)  $8x^2 - 24x = 0$

**Solve each equation with the quadratic formula.**

5)  $n^2 + 1 = 3n$

**Solve each equation. Remember to check for extraneous solutions.**

6)  $2 = -4 + \sqrt{r - 7}$

**Solve each equation.**

7)  $\frac{|r - 9|}{6} = 2$

**Solve each inequality.**

8)  $-67 < -4(-3 + 4v) + 1$

**Solve each equation.**

9)  $36^{n-2} = 216$

**Use substitution to find the x-coordinate of the solution to each system.**

10)  $y = 5x - 3$   
 $5x + 6y = -18$

$$1) 120 = -4(-6 - 4x)$$

$$120 = 24 + 16x$$

$$\begin{array}{r} -24 \quad -24 \\ \hline \end{array}$$

$$\frac{96}{16} = \frac{16x}{16}$$

$$x = 6$$

$$2) 5(4x + 3) - (1 + 6x) = 1 + 4x + x + 4$$

$$20x + 15 - 1 - 6x = 1 + 4x + x + 4$$

$$14x + 14 = 5x + 5$$

$$\begin{array}{r} -5x \quad -14 \quad -5x \quad -14 \\ \hline \end{array}$$

$$\frac{9x}{9} = \frac{-9}{9}$$

$$x = -1$$

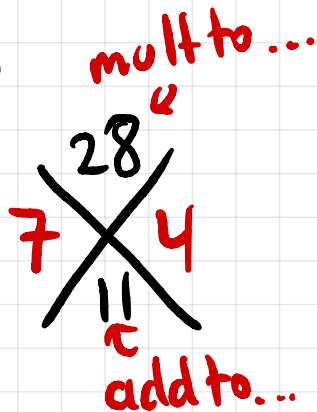
$$3) 14p^2 + 11p + 2 = 0$$

$$p^2 + 11p + 28 = 0$$

$$(x+7)(x+4) = 0$$

$$(x + \frac{1}{2})(x + \frac{2}{7}) = 0$$

$$(2x+1)(7x+2) = 0$$



$$2x+1=0$$

$$x = -\frac{1}{2}$$

$$7x+2=0$$

$$x = -\frac{2}{7}$$

$$4) 8x^2 - 24x = 0$$

$$\underline{8x} (\underline{x-3}) = 0$$

$$8x=0 \quad x-3=0$$

$$\boxed{x=0 \quad x=3}$$

$$6) 2 = -4 + \sqrt{r-7}$$

$$+4 \quad +4$$

$$\underline{(6)^2 = (\sqrt{r-7})^2}$$

$$36 = r - 7$$

$$+7 \quad +7$$

$$\boxed{r=43}$$

quad formula

$$x = \frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$$

$$5) n^2 + 1 = 3n$$
$$\underline{-3n \quad -3n}$$

$$| n^2 - 3n + 1 = 0$$
$$Ax^2 + Bx + C = 0$$

$$A=1 \quad B=-3 \quad C=1$$

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(1)}}{2(1)}$$

$$\boxed{x = \frac{3 \pm \sqrt{5}}{2}}$$

$$7) \frac{|r-9|}{6} = 2$$

$$\cancel{6} \cdot \frac{|r-9|}{\cancel{6}} = 2 \cdot \cancel{6}$$

$$|r-9| = 12$$



$$r-9=12$$

$$r-9=-12$$

$$r=21$$

$$r=-3$$

$$8) -67 < -4(-3 + 4v) + 1$$

$$-67 < 12 - 16v + 1$$

$$-67 < -16v + 13$$

$$\begin{array}{r} -13 \\ \hline -80 < -16v \\ \hline -16 \end{array}$$

$$5 > v$$

or  
more  
conventionally  
 $v < 5$

$$9) 36^{n-2} = 216$$

$$(6^2)^{n-2} = 6^3$$

$$2(n-2) = 3$$

$$2n - 4 = 3$$

$$2n = 7$$

$$n = \frac{7}{2}$$

$$10) y = 5x - 3$$
$$5x + 6y = -18$$

$$5x + 6(5x - 3) = -18$$

$$5x + 30x - 18 = -18$$

$$35x - 18 = -18$$
$$\begin{array}{r} +18 \quad +18 \\ \hline \end{array}$$

$$35x = 0$$

$$x = 0$$