

## Equation Development 4.2

Solve, check, and graph the following equations.

1)  $v - \sqrt{3} = 5 + 4\sqrt{3}$

$$v = 5 + 5\sqrt{3}$$

$$(5 + 5\sqrt{3}) - \sqrt{3} = 5 + 4\sqrt{3}$$

$$5 + 4\sqrt{3} = 5 + 4\sqrt{3}$$



$$0 \quad 5 + 5\sqrt{3}$$

2)  $\frac{a}{\sqrt{10}} = 3 + \sqrt{2}$

$$a = 21$$

3)  $\frac{a\sqrt{2}}{7} = 3$

$$7 \cdot \frac{a\sqrt{2}}{7} = 3(7)$$

$$a\sqrt{2} = 21$$

$$a = \frac{21}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$a = \frac{21\sqrt{2}}{2}$$

$$\frac{(21\sqrt{2}) \cdot \sqrt{2}}{2} = 3$$

$$\frac{21 \cdot 2}{2} = 21$$

$$21 = 21$$



$$0 \quad \frac{21\sqrt{2}}{2}$$

4)  $2\sqrt{d} - 11 = -5$

$$d = 9$$

$$2\sqrt{(9)} - 11 = -5$$

$$2(3) = 6$$

$$6 = 6$$

5)  $\sqrt{a-5} = 4$

6)  $\sqrt{v+7} + 15 = 12$

$$\sqrt{v+7} = -3$$

$$v+7 = 9$$

$$v = 2$$

$$\sqrt{(2)+7} + 15 = 12$$

$$\sqrt{9} + 15 = 12$$

$$3 + 15 = 12$$

$$18 \neq 12$$

DOESN'T WORK!

$$7) -5\sqrt{2q} = 30$$

DOESN'T WORK!

$$8) 8\sqrt{5y} + 5 = 85$$

$$8\sqrt{5y} = 80$$

$$\sqrt{5y} = 10$$

$$5y = 100$$

$$y = 20$$

$$9) \sqrt{3c+7} = 5$$

$$c = 6$$

$$\sqrt{3(6)+7} = 5$$

$$\sqrt{18+7} = 5$$

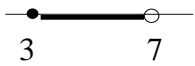
$$\sqrt{25} = 5$$

$$5 = 5$$

Solve and graph the following inequalities.

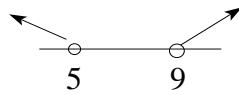
$$11) 11 \leq 4x - 1 < 27$$

$$3 \leq x < 7$$



$$12) 7x + 4 < 39 \text{ or } 5x - 3 > 42$$

$$x < 5 \text{ or } x > 9$$



$$13) -18 > 9x > 63$$

$$-2 > x > 7$$



$$14) |4t+2| < 18$$

$$4t + 2 < 18 \quad 4t + 2 > -18$$

$$4t < 16 \quad 4t > -20$$

$$t < 4 \quad t > -5$$

$$15) |3x| > 21$$

$$x > 7$$

$$x < -7$$

$$16) |6t + 3| \leq 27$$

$$t \leq 4$$

$$t \geq -5$$

$$17) |w + 5| \geq 7$$

$$w \geq 2$$

$$w \leq -12$$