Name: _____ Date: 11/16/16 High

$X = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$ # Lesson: Quadratic Formula

Solve the following equations using the quadratic formula.

1. $v^2 + v - 20 = 0$

$\frac{-1 \pm \sqrt{1^2 - 4 \cdot 1 \cdot 20}}{2 \cdot 1}$

$(4, -5)$

2. $n^2 - 3n - 88 = 0$ (A B C)

$\frac{-(-3) \pm \sqrt{(-3)^2 - 4 \cdot 1 \cdot -88}}{2 \cdot 1}$

$\frac{3 \pm \sqrt{361}}{2}$

$\frac{3 \pm 19}{2} = \frac{3+19}{2} \quad \frac{3-19}{2}$

$(11, -8)$

3. $6v^2 - 7v - 143 = 0$

$\frac{7 \pm \sqrt{(-7)^2 - 4(6)(-143)}}{2 \cdot 6}$

$\frac{7 \pm 59}{12}$

$\left(\frac{11}{2}, -\frac{13}{3}\right)$

4. $3n^2 - 3n - 15 = 3$

$\frac{3 \pm \sqrt{(-3)^2 - 4(3)(-18)}}{2 \cdot 3}$

$\frac{3 \pm \sqrt{189}}{6}$

$(3, -2)$

5. $5p^2 - 86 = -6$

$\frac{-0 \pm \sqrt{0^2 - 4(5)(-80)}}{2 \cdot 5}$

$(4, -4)$ $\frac{-0 \pm 40}{10}$

6. $x^2 - 3x + 8 = 12$

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

$\frac{3 \pm 5}{2}$

$(4, -1)$

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7. $4a^2 - 144 = 0$

8. $3a^2 = a + 24$

9. $4p^2 - 85 = -3p$

10. $-2x^2 - 4x - 54 = -x - 7x^2$

$5x^2 - 3x - 54 = 0$

$$\frac{3 \pm \sqrt{(-3)^2 - 4(5)(-54)}}{2 \cdot 5}$$

$$\frac{3 \pm 33}{10}$$

$\left(\frac{18}{5}, -3\right)$

11. $3a^2 - 3a - 10 = -a^2$

$4a^2 - 3a - 10 = 0$

$\left(2, -\frac{5}{4}\right)$

$$\frac{3 \pm \sqrt{(-3)^2 - 4(4)(-10)}}{2 \cdot 4}$$

$$\frac{3 \pm 13}{8}$$

12. $3n^2 - 10n = 33 - 12n$

Name: _____ Date: 11/16/16 Medium

Lesson: Quadratic Formula

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Solve the following equations using the quadratic formula.

1. $v^2 + v - 20 = 0$

A B C

$\frac{-1 \pm \sqrt{1^2 - 4(1)(-20)}}{2}$

$\frac{-1 \pm \sqrt{81}}{2}$

$\frac{-1+9}{2} = 4$

$\frac{-1-9}{2} = -5$

[4, -5]

2. $n^2 - 3n - 88 = 0$

A B C

$\frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(-88)}}{2}$

$\frac{3 \pm \sqrt{361}}{2}$

$\frac{3+19}{2}$ $\frac{3-19}{2}$

[11, -8]

3. $6v^2 - 7v - 143 = 0$

A B C

$\frac{7 \pm \sqrt{(-7)^2 - 4(6)(-143)}}{12}$

$\frac{7 \pm \sqrt{3481}}{12}$

$\frac{7+59}{12}$ $\frac{7-59}{12}$

$\left[\frac{11}{2}, -\frac{13}{3}\right]$

4. $3n^2 - 3n - 15 = 3$

A = 3 B = -3 C = -15

$\frac{3 \pm \sqrt{9 - 4(3)(-15)}}{6}$

$\frac{3 \pm 13.7477}{6}$

$\frac{3+13.74}{6}$ $\frac{3-13.74}{6}$

[3, -2]

5. $5p^2 - 86 = -6$

A = 5 B = 0 C = -80

$\frac{0 \pm \sqrt{(0)^2 - 4(5)(-80)}}{2(5)}$

[4, -4]

6. $x^2 - 3x + 8 = 12$

A = 1 B = -3 C = -4

$\frac{3 \pm \sqrt{9 - 4(1)(-4)}}{2}$

$\frac{3+5}{2}$ $\frac{3-5}{2}$

[4, -1]

Medium

Name: _____ Date: _____

$$\frac{-b \pm \sqrt{b^2-4(a)(c)}}{2a}$$

7. $4a^2 - 144 = 0$

$A=4 \quad B=0 \quad C=-144$

$$\frac{\pm\sqrt{-4(4)(-144)}}{8}$$

$(6, -6)$

8. $3a^2 = a + 24$

$3a^2 - a - 24$

$4p^2 + 3p - 85$

9. $4p^2 - 85 = -3p$

$5x^2 - 3x - 54$

10. $-2x^2 - 4x - 54 = -x - 7x^2$

$A=5 \quad B=-3 \quad C=-54$

$$\frac{3 \pm \sqrt{9-4(5)(-54}}{10}$$

$$\frac{3+33}{10} \quad \frac{3-33}{10}$$

$\left[\frac{18}{5}, -3\right]$

$4a^2 - 3a - 10$

11. $3a^2 - 3a - 10 = -a^2$

$$\frac{3 \pm \sqrt{9-4(4)(-10)}}{6}$$

$$\frac{3+13}{6} \quad \frac{3-13}{6}$$

$\left[\frac{8}{3}, -\frac{5}{3}\right]$

12. $3n^2 - 10n = 33 - 12n$

Name: _____ Date: 11/16/16 Low

Lesson: Quadratic Formula

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

Solve the following equations using the quadratic formula.

1. $v^2 + v - 20 = 0$

a=1
b=1
c=-20

$\frac{-1 \pm \sqrt{1^2-4(1)(-20)}}{2}$

2. $n^2 - 3n - 88 = 0$

a=1
b=-3
c=-88

$\frac{-(-3) \pm \sqrt{(-3)^2-4(1)(-88)}}{2}$

$\frac{3 \pm \sqrt{361}}{2}$

$\frac{3 \pm 19}{2}$ = 11, -8

$\frac{3+19}{2} = 11$

$\frac{3-19}{2} = -8$

3. $6v^2 - 7v - 143 = 0$

a=6
b=-7
c=-143

$\frac{-(-7) \pm \sqrt{(-7)^2-4(6)(-143)}}{12}$

$\frac{7 \pm \sqrt{3481}}{12}$

$\frac{29}{6}, \frac{-11}{3}$

$\frac{7+59}{12} = \frac{29}{6}$ $\frac{7-59}{12} = \frac{-11}{3}$

4. $3n^2 - 3n - 18 = 3$ (+18)

a=3
b=-3
c=-15

$\frac{-(-3) \pm \sqrt{(-3)^2-4(3)(-15)}}{6}$

$\frac{3 \pm \sqrt{189}}{6}$

$\frac{3+14}{6}$

5. $5p^2 - 86 = -6$ (+6)

$5p^2 - 80 = 0$

a=5
b=0
c=-80

$\frac{-0 \pm \sqrt{0^2-4(5)(-80)}}{10}$

$\frac{0 \pm \sqrt{1600}}{10}$ $\frac{0+40}{10}$ $\frac{0-40}{10}$

4, -4

6. $x^2 - 3x + 8 = 12$ (-12)

$x^2 - 3x + 4 = 0$

a=1
b=-3
c=4

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

$\frac{3 \pm \sqrt{-7}}{2}$ $\frac{3+}{4}$ =

(-4,1)

Low

Name: _____ Date: _____

7. $4a^2 - 144 = 0$

8. $3a^2 = a + 24$

9. $4p^2 - 85 = -3p$

10. $-2x^2 - 4x - 54 = -x - 7x^2$

$+x \quad +7x^2$

$5x^2 - 3x - 54 = 0$

$a = 5$

$b = -3$

$c = -54$

$\frac{-(-3) \pm \sqrt{(-3)^2 - 4(5)(-54)}}{10}$

$\frac{3 \pm \sqrt{1089}}{10}$ $\quad \frac{3+33}{10} = \frac{18}{5}$ $\quad \frac{3-33}{10} = -3$

$\left(\frac{18}{5}, -3\right)$

$+a^2$

11. $3a^2 - 3a - 10 = -a^2$

$4a^2 - 3a - 10 = 0$

$a = 4$

$b = -3$

$c = -10$

$\frac{-(-3) \pm \sqrt{(-3)^2 - 4(4)(-10)}}{8}$

$\frac{3 \pm \sqrt{169}}{8}$ $\quad \frac{3+13}{8} = 2$ $\quad \frac{3-13}{8} = -\frac{5}{4}$

$2, \frac{5}{4}$

12. $3n^2 - 10n = 33 - 12n$