Algebra 1
9.4 – 9.6 Station Review

Name: Key
Date: _____ Hour: ____

Success Criteria Self Evaluation

Rate your level of understanding with the scale below before beginning the review activity. After completing the review activity, rate your level of understanding again. This will help identify any s that need to be re-looked at before the assessment, which is next class.

1 = Need Help! 2 = Kind Of! 3 = Almost! 4 = Got It!

Section	Success Criteria	Rating Before Activity	Rating After Activity
9.4	I can complete the square for expressions of the form $x^2 + bx$	1 2 3 4	1 2 3 4
	I can solve quadratic equations by completing the square	1 2 3 4	1 2 3 4
9.5	I can solve quadratic equations using the Quadratic Formula	1 2 3 4	1 2 3 4
	I can interpret the discriminant	1 2 3 4	1 2 3 4
	I can choose efficient methods for solving quadratic equations	1 2 3 4	1 2 3 4
9.6	I can solve systems of nonlinear equations by graphing	1 2 3 4	1 2 3 4
	I can solve systems of nonlinear equations algebraically	1 2 3 4	1 2 3 4

Station 1:

1. $x^2+26x+169$

Step 1: $\frac{26}{2}=13$

Step 2: $13^2=169$

$x^2+26x+169;\ (x+13)^2$

2. $x^2-32x+256$

Step 1: $\frac{-32}{2}=-16$

Step 2: $(-16)^2=256$

$x^2-32x+256;\ (x-16)^2$

3. $x^2-16x+64$

Step 1: $\frac{-16}{2}=-8$

Step 2: $(-8)^2=64$

$x^2-16x+64;\ (x-8)^2$

4. $x^2-22x+121$

Step 1: $\frac{-22}{2}=-11$

Step 2: $(-11)^2=121$

$x^2-22x+121;\ (x-11)^2$

5. $x^2+20x+100$

Step 1: $\frac{20}{2}=10$

Step 2: $10^2=100$

$x^2+20x+100;\ (x+10)^2$

6. $x^2+13x+\frac{169}{4}$

Step 1: $\frac{13}{2}$

Step 2: $(\frac{13}{2})^2=\frac{169}{4}$

$x^2+13x+\frac{169}{4};\ (x+\frac{13}{2})^2$

Station 2:

1. $x^2+2x+1=3+1$

$\sqrt{(x+1)^2}=\sqrt{4}$

$x+1=\pm 2$

$x+1=2$ $\quad x=1$

$x+1=-2$ $\quad x=-3$

$x=1, x=-3$

2. $x^2-6x+9=16+9$

$\sqrt{(x-3)^2}=\sqrt{25}$

$x-3=\pm 5$

$x-3=5$ $\quad x=8$

$x-3=-5$ $\quad x=-2$

$x=-2,\ x=8$

3. $x^2+6x+9=-5+9$

$\sqrt{(x+3)^2}=\sqrt{4}$

$x+3=\pm 2$

$x=1,\ x=-5$

$x+3=2$ $\quad x=-1$

$x+3=-2$ $\quad x=-5$

4. $\frac{2x^2-8x}{2}=\frac{10}{2}$

$x^2-4x+4=5+4$

$x=5, x=-1$

$\sqrt{(x-2)^2}=\sqrt{9}$

$x-2=\pm 3$

$x-2=3$ $\quad x=5$

$x-2=-3$ $\quad x=-1$

Station 3: $a=1, b=7, c=9$

1. $x^2+7x+9=0$

$$x=\frac{-7\pm\sqrt{(7)^2-4(1)(9)}}{2(1)}$$

$$x=\frac{-7\pm\sqrt{13}}{2}$$

$x\approx -1.7, x\approx -5.3$

3. $2x^2-5x+2=0$

$a=2,\ b=-5,\ c=2$

$$x=\frac{-(-5)\pm\sqrt{(-5)^2-4(2)(2)}}{2(2)}$$

$$x=\frac{5\pm\sqrt{9}}{4}$$

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

$a=1, b=4, c=1$

2. $x^2+4x+1=0$

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

$$x=\frac{-4\pm\sqrt{12}}{2}$$

$x\approx -0.3, x\approx -3.7$

4. $-6x^2+7x-2=0$ $a=-6, b=7, c=-2$

$$x=\frac{-7\pm\sqrt{7^2-4(-6)(-2)}}{2(-6)}$$

$$x=\frac{-7\pm\sqrt{1}}{-12}$$

$x=\frac{1}{2}, x=\frac{2}{3}$

Station 4:

1. $-x^2+4x-4=0$

$a=-1\ \ b=4\ \ c=-4$

$4^2-4(-1)(-4)=0$

1 real solution

2. $6x^2+2x+1=0$ $a=6, b=2, c=1$

$2^2-4(6)(1)$

$4-24=-20<0$

No real solutions

3. $\frac{1}{2}x^2-7x+1=0$

$a=\frac{1}{2},\ b=-7,\ c=1$

$(-7)^2-4(\frac{1}{2})(1)=47>0$

2 real solutions

4. $2x^2-12x+18=0$ $a=2, b=-12, c=18$

$(-12)^2-4(2)(18)=0$

1 real solution

5. $-5x^2+8x-9=0$

$a=-5, b=8, c=-9$

$8^2-4(-5)(-9)=-116<0$

No real solutions

6. $x^2-5x-3=0$

$a=1, b=-5, c=-3$

$(-5)^2-4(1)(-3)=37>0$

2 real solutions

Station 5:

1. $5x^2 - x - 1 = 0$ $a=5, b=-1, c=-1$

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(5)(-1)}}{2(5)}$$

$$x = \frac{1 \pm \sqrt{21}}{10}$$

Quadratic formula; Not factorable

$x \approx 0.56, x \approx -0.36$

2. $x^2 + 6x - 7 = 0$

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

$x = -7$ $x = 1$

$x = -7, x = 1$

Factoring; easy to factor

3. $2x^2 - 98 = 0$

$+98 \quad +98$

$2x^2 = 98$

$x^2 = 49$

Square root; Of the form $x^2 = d$

$x = 7, x = -7$

4. $x^2 - 10x + \underline{25} = 1 + 25$

$\sqrt{(x-5)^2} = \sqrt{26}$

$x - 5 = \pm\sqrt{26}$

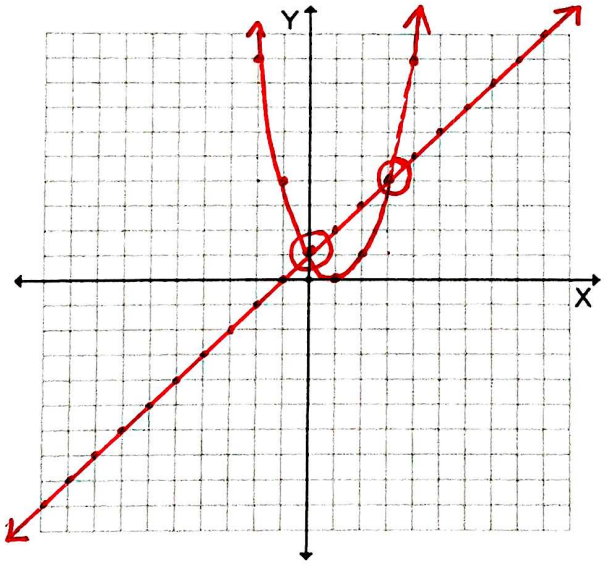
$x = 5 \pm \sqrt{26}$

$x \approx 10.1, x \approx -0.1$

Complete the square; $a=1$, b is even

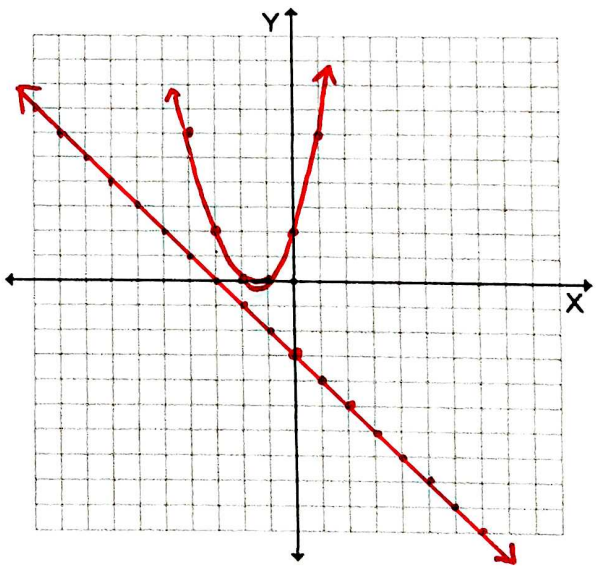
Station 6:

1.



Solutions: (0,1), (3,4)

2.



Solution: No solution

Station 7:

1. $x - 5 = x^2 + 4x - 5$

$0 = x^2 + 3x$

$0 = x(x+3)$

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

$y = -5$ $\quad$ $y = -8$

$\boxed{(0,-5), (-3,-8)}$

2. $5 - 6 = -x^2$

$-1 = -x^2$

$1 = x^2$

$x = \pm 1$

$x = 1$ $\quad$ $x = -1$

$y = 5$ $\quad$ $y = 5$

$\boxed{(1,5), (-1,5)}$

3. $y = -2x$

$y = x^2 + 3x$

$x = 0$ $\quad$ $x = -5$

$y = 0$ $\quad$ $y = 10$

$y = x^2 + 3x$

$-\ y = 0 - 2x$

$0 = x^2 + 5x$

$0 = x(x+5)$

$x = 0$ $\quad$ $x = -5$

$\boxed{(0,0), (-5,10)}$

4. $y = x^2 + x + 1$

$-\ y = 0 - x - 2$

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

$\boxed{\text{No real solutions}}$

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

$$x = \frac{-2 \pm \sqrt{-8}}{2}$$