1. ***Graphing quadratic equations with tables (in standard form)—4 Total Problems***

*Breakdown: (Identify the vertex using*$x=\frac{-b}{2a} and plot 5 points on a table$*)*

 2 quadratic opening up ex: $y=x^{2}+10x+16$

2 quadratic opening down ex: $y=-x^{2}+16$

1. ***Graphing linear equations in slope-intercept form—6 Total Problems***

*Breakdown (Plot at least 4 points):*

2 problems with positive slopes (1 fraction slope, one integer slope) ex: $y=4x+4$

2 problems with negative slopes (1 fraction slope, one integer slope) ex: $y=-4x+4$

1 problem with a slope of 0 ex: $y=4$

1 problem with an undefined slope ex: $x=4$

1. ***Solve equation with square roots—8 Total Problems***

*Breakdown:*

2 problems with solutions that are real integer numbers ex: $\left(x+2\right)^{2}=4$

1 problem with two solutions and a radical that can be expressed in simplest form ex: $\left(x+2\right)^{2}=24$

1 problem with one solution ex: $(x+3)^{2}=0$

2 problems with radicals that cannot be simplified ex: $\left(x+2\right)^{2}=11$

2 problems with imaginary answers ex: $\left(x+2\right)^{2}+15=4$

1. ***Factoring quadratics—pull out GCF first—6 Total Problems***

*Breakdown*:

3 problems where you pull out the GCF and then *a = 1* ex: $2x^{2}+20x+32$

3 problems where you pull out the GCF and then $a\ne 1$🡪 Lizzie Method used to factor ex: $4x^{2}+34x+42$

1. ***Factoring quadratics—when a is 1—8 Total Problems***

*Breakdown*:

2 problems where *b* is positive and *c* is positive ex: $x^{2}+10x+16$

2 problems where *b* is negative and *c* is positive ex: $x^{2}-10x+16$

2 problems where *b* is positive and *c* is negative ex: $x^{2}+6x-16$

2 problems where *b* is negative and *c* is negative ex: $x^{2}-6x-16$

1. ***Factoring quadratics—when a is not 1—6 Total Problems***

*Breakdown:*

6 problems where a is not 1 and there is no GCF to pull out. Use the Lizzie Method to factor*.*

Ex: $2x^{2}+17x+21$

1. ***Factoring quadratics—difference of squares—8 Total Problems***

*Breakdown:*

2 problems in the form $(varaible^{2}-perfect square \#)$ ex: $x^{2}-16$

2 problems in the form $(variable^{2}-variable^{2}$) ex: $x^{2}-y^{2}$

2 problems in the form $(perfectsq\#variable^{2}-perfectsq\#variable^{2}$) ex: $25x^{2}-100y^{2}$

2 problems in the form ($perfectsq\#variable^{2x}-perfectsq\#variable^{2x})$ ex: $36z^{6}-121y^{12}$

1. ***Solving Quadratics using the Quadratic Formula—6 Total Problems***

*Breakdown:*

2 problems where the solution is two real numbers ex: $x^{2}+10x+16=0$

2 problems where there is only 1 solution ex: $x^{2}+10x+25=0$

2 problems where both solutions are imaginary ex: $-x^{2}-16$=0

1. ***Solving equations using cross multiplication —6 Total Problems***

*Breakdown*

3 problems when cross multiplied are a linear equation ex: $\frac{x+3}{4}=\frac{x}{12}$

3 problems when cross multiplied are a quadratics ex: $\frac{x+3}{4}=\frac{1}{x}$

1. ***Find slope algebraically between two points—8 total problems***

*Breakdown*

3 problems with positive slopes ex: (1, 1) and (3, 4)

3 problems with negative slopes ex: (1, 1) and (3, -4)

1 problem with an undefined slope ex: (1, 1) and (1, 4)

1 problem with a slop of 0ex: (1, 1) and (3, 1)