2.1-2.3 Assessment Review Exercises

* 2-1: Vertex Form
	+ Identify Key Features of Quadratic Functions
		- Identify transformations of graph in vertex form

**Example(s):**

1. Describe the transformations of $g\left(x\right)=-\left(x+1\right)^{2}-3$

* + - Determine axis of symmetry, domain, range, vertex, minimum/maximum of function in vertex form

**Example (s):**

2. Find the key features of the function $g\left(x\right)=-4\left(x+4\right)^{2}-2$

* 2-2: Standard Form
	+ Write and graph quadratic function in standard form
		- Use key features (vertex, axis of symmetry, and y-intercept) to graph a function in quadratic form

**Example(s):**

3. Find vertex, axis of symmetry, y-intercept, and graph $f\left(x\right)=-x^{2}+2x-8$

4. Find vertex, axis of symmetry, y-intercept, and graph $f\left(x\right)=4x^{2}-16x+14$

* + - Find the vertex of a function in standard form (word problem)

**Example(s):**

5. If a projectile is fired straight upward from the ground with an initial speed of 128 feet per second, then its height h in feet after t seconds is given by $h\left(t\right)= -16t^{2}+128t$. Find the maximum height of the projectile.

* + - Convert between vertex form and standard form

**Example(s):**

6. Convert $f\left(x\right)=x^{2}-2x+3$ to vertex form

7. Convert $f\left(x\right)=-2\left(x+1\right)^{2}-3$ to standard form

* 2-3: Factored Form
	+ Find the zeroes of quadratic functions
		- Factor a quadratic expression (standard, factoring GCF, and ac method)

**Example(s):**

8. Factor: $x^{2}-3x-28$

9. Factor: $3x^{2}-11x-20$

10. Factor: $x^{2}+16x+63$

11. Factor: $3x^{2}-3x-18$

* + - Solve quadratic equations using factoring

**Example(s):**

12. Solve using the zero product property: $6\left(5-x\right)\left(x+4\right)=0$

13. Solve: $p^{2}-3p-54=0$

14. Solve: $x^{2}=5x+14$

15. Solve: $4x^{2}=15x+25$

* + - Write equation of parabola in factored form given x-intercepts and another point.

**Example(s):**

16. Use the graph of the function to write equation in factored form:



17. Write an equation for a parabola with x-intercepts (-3,0) and (2,0) which passes through the point (1, -12)