Quadratic Functions Summative Assessment Grading Rubric

Question	Solutions	Score
1	1. The parabola opens *up.* 2. The x-intercepts are $(-4,0), (-2,0)$. 3. The y-intercept is $(0,8)$. 4. The vertex is $(-3,-1)$. **5.** The axis of symmetry is $x = -3$.	1. 1 point 2. 1 point 0.5 each intercept 3. 1 point 4. 1 point
2	1. $3(x-1)^2 + 2$ 2. $h = -\dfrac{b}{2a} = \dfrac{6}{2\cdot 3}$ 3. $h = 1$ 4. $k = f(1) = 3 \cdot 1^2 - 6 \cdot 1 + 5$ 5. $k = 2$	1 point answer 1 point setup the equation for h 1 point calculation of h 1 point setup the equation for k 1 point calculation of k

3	A) Quadratic family
	B) All reals/all numbers/$(-\infty, \infty)$
	
	C) $[-1, \infty) \,/\, y \geq -1$
		A) 1 point
		B) 2 points
		   1 point for the lower bound
		   1 point for the upper bound
		C) 2 points
		   1 point for the lower bound
		   1 point for the upper bound

4	A) Quadratic family
	B) x^2
	C)
	T1: up 3
	T2: right 1
	  Or
	T1: right 1
	T2: up 3
		A) 0.5 point
		B) 0.5 point
		C) T1 1 point for up
		   T1 1 point for 3
		   T2 1 point for right
		   T2 1 point for 1
		   Or
		   T1 1 point for right
		   T1 1 point for 1
		   T2 1 point for up
		   T2 1 point for 3

5	A) Absolute value
	B) $|x|$
	C) Correct Answers:
	  T1 reflection, T2 left 4, T3: up 7
	  T1 reflection, T2 up 7, T3: left 4
	  T1 left 4, T2 reflection 4, T3: up 7
	  T1 left 4, T2: down 7, T3: reflection
	  T1: down 7, T2 left 4, T3 reflection
	  T1 down 7, T2 reflection, T3 left 4
		A) 1 point
		B) 1 point
		C) 1 point for each correct transformation, 1 point for correct order
		Translations: 0.5 for type and 0.5 for units

6	T1: $-|x|$ T2: $-|x| + 3$ T2 : $-|x + 5| + 3$	T1 1 point T2: 1 point / 0.5 if incorrect constant T3: 1 point / 0.5 if incorrect constant

Guess-and-check/Split the middle	Box Method
1 point for each correct factor/zero 1 point for splitting the linear term 1 point for factoring the first factor 1 point for the second factoring	1 point for each correct factor/zero 1 point for factors of c 1 point for setting the sum to $-b$ 1 point for finding p, q
Graph	**Quadratic**
1 point for each correct factor/zero 1.5 point for each correct x-intercept/zero	1 point for each correct factor/zero 2 points for setting up the quadratic formula 1 point for calculations