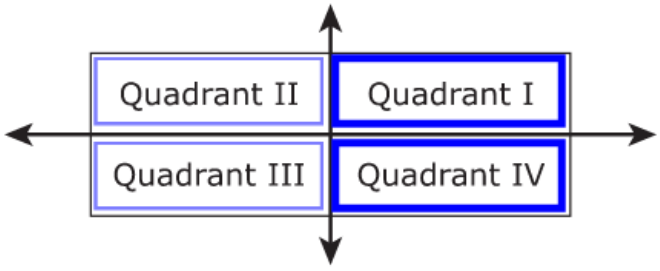
Released Test Answer and Alignment Document

Mathematics – Algebra II

Spring 2017

Item Number	Answer Key	Evidence Statement Key
1.	B	A-APR.2
2.		F-IF.7e-2
3.	The graphs reveal that 4 is a solution and 1 is not a solution ▾ to the equation $\sqrt{x} = x - 2$ because f and g intersect at x = 4 and do not intersect x = 1 ▾	A-REI.11-2
4.	B	N-CN.2
5.	B, F	A-Int.1
6.	Part A: $31,000 Part B: B	A-SSE.4-2
7.	Part A: A Part B: $0° < \theta < 90°$ Part C: 31058 feet Part D: 30 degrees	F-Int.1-2
8.	B	A-REI.4b-2
9.	B	A-SSE.2-3
10.	A, B	N-CN.7
11.	(-2 , 1 , 5)	A-REI.6-2
12.	Part A: 6 years Part B: C	F-LE.2-3

13.	Part A: See Rubric Part B: See Rubric	HS-C.CCR
14.	Part A: B Part B: D	S-IC.3-1
15.	$\frac{3}{4}$ or an equivalent fraction	F-TF.8-2
16.	8	N-RN.2
17.	Between the ages of 5 and 20, the boy's height increased at an average of [2] inches per year. The fastest increase in height occurred from [age 15 to age 20].	F-IF.6-7

#13 Rubric Part A	
Score	**Description**

2	Student response includes the following 2 elements.
	• **Computation component** = 1 point
	  ○ The zeros of $f(x)$ are determined.
	• **Reasoning component** = 1 point
	  ○ Valid explanation of a process for determining the zeros.
	
	Sample Student Response:
	
	The value of n does not affect the roots of the equation:
	$g(n)x^2 + 2(g(n))x = g(n)(x)(x + 2)$
	$g(n)$ is a constant that does not affect the zeros: $f(x) = 0$ if $x = 0$ or $x = -2$. Therefore the zeros of $f(x)$ are $x = 0$ and $x = -2$.
	
	Note:
	• The student earns the point by showing algebraically that the value of $g(n)$ does not change the values of x for which $f(x) = 0$.

1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#13 Rubric Part B	
Score	**Description**

2	Student response includes the following 2 elements.
	• **Computation component** = 1 point
	  ○ The correct value for n when $f(n)$ has a maximum.
	• **Reasoning component** = 1 point
	  ○ Valid explanation of when $f(x)$ has a maximum.
	
	Sample Student Response:
	
	For all values of n, the graph of $j(x)$ is a parabola through points (0, 0) and (0, -2). Because $g(n)$ is the coefficient of the second-degree term of $f(x)$, the parabola opens downward and has a maximum value when $g(n) < 0$. $g(n) < 0$ when $n < 8$. Therefore $f(x)$ has a maximum for $n < 8$.
	
	Notes:
	• The student earns the reasoning point for describing how the sign of $g(n)$, determined by the value of n, determines the shape of the graph of $f(x)$.
	• If a response receives a score of 0/0, credit may be given in Part B computation for any value stated that is less than 8. This is minimally acceptable to illustrate that the value would result in a negative $f(x)$.

1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.