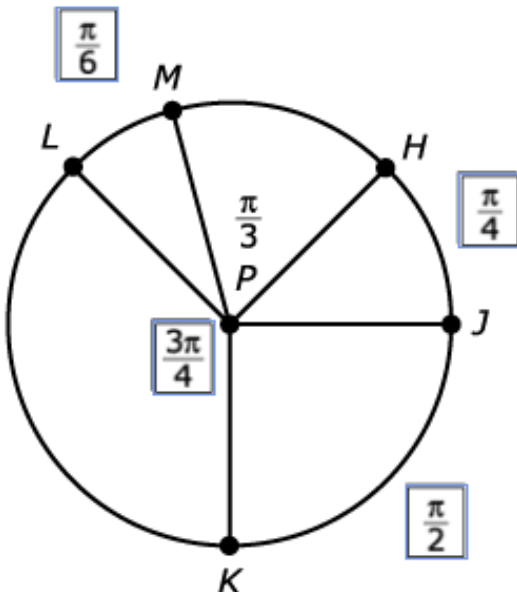


Released Items Answer and Alignment Document

Mathematics – Algebra II

2019

Item Number	Entity ID	Answer Key	Evidence Statement Key
1.	VH079825	Part A: D Part B: C, F	A-Int.1
2.	VH179881	A, C, D	A-REI.2
3.	M44318P	C, E	F-BF.3-2
4.	2831-M42233P	Part A: A, D Part B: B Part C: D Part D: B	F-IF.4-2
5.	M45037		F-TF.1
6.	VH218358	C	S-IC.2
7.	3056-M44176	Part A: See Rubric Part B: See Rubric	HS-D.CCR
8.	M48753	See Rubric	HS-D.2-13

9.	M47815	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 10px; margin: 2px;">h(d)</div> <div style="border: 1px solid black; padding: 2px 10px; margin: 2px;">g(y)</div> <div style="border: 1px solid black; padding: 2px 10px; margin: 2px;">f(m)</div> </div>	F-IF.8b
10.	VF902881	A, B, C, E	A-REI.11-2
11.	M40562	C, D	N-CN.7
12.	VF564797	See Rubric	HS-C.5.4
13.	VF650994	B, C, D	A-REI.4b-2
14.	VH031799	B, D, E	N-RN.2
15.	VH024132	Part A: 0.96 Part B: B	F-Int.1-2
16.	VF905308	Part A: 94 Part B: B Part C: B Part D: 2631 or 2632 or 2551	HS-Int.3-3
17.	M43524	$h(x) = 2 \left(\boxed{3x^2} \right) - 3 \left(\boxed{7} \right)$ $= \boxed{6x^2} - \boxed{21}$	F-BF.1b-1
18.	M41740	See Rubric	HS-C.CCR
19.	VH234112	Part A: D Part B: The model <input type="text" value="underpredicts"/> the actual amount by <input type="text" value="less than 5"/> percent cloud cover.	S-ID.6a-2

#7 3056-M44176 Rubric Part A

Score	Description
3	<p>Student response includes the 3 following elements.</p> <ul style="list-style-type: none">• Correctly determines the costs of renting movies and video games• Correctly determines how much Keith will spend• Correctly explains answer <p>Sample Student Response:</p> <p>In order to solve for the rental costs of each movie and video game, I can create a system of equations to model the situation.</p> <p>Let m represent the cost for each movie. Let g represent the cost for each video game.</p> $3m + 2g = 25.00$ $2m + 1g = 14.75$ <p>I can eliminate the variable, g, by multiplying the second equation by 2 and subtracting it from the first equation. I will be able to solve for m.</p> $3m + 2g = 25.00$ $2(2m + 1g = 14.75)$ $\begin{array}{r} 3m + 2g = 25.00 \\ - (4m + 2g = 29.50) \\ \hline -m = -4.50 \\ m = 4.50 \end{array}$ <p>It costs \$4.50 to rent one movie.</p> <p>I can solve for the variable, g, by substituting 4.50 for m into one of the equations.</p> $3m + 2g = 25.00$ $3(4.50) + 2g = 25.00$ $13.50 + 2g = 25.00$ $2g = 11.50$ $g = 5.75$ <p>It costs 5.75 to rent one video game.</p>

	If Keith wants to rent one movie and two video games, it will cost him $4.50 + 2(5.75) = 16.00$. So, Keith will spend \$16.00 at the rental store.
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	The response is incorrect or irrelevant.

#7 3056-M44176 Rubric Part B

Score	Description
3	<p>Student response includes each of the following 3 elements:</p> <ul style="list-style-type: none">• Correctly determines the cost of renting 2 movies and 3 video games based on the answer to Part A.• Correctly determines the rental cost of movies and video games at Beth’s store.• Correct explanation. <p>Sample Student Response:</p> <p>Renting 2 movies and 3 video games from the first store is equal to renting the 2 movies and 3 video games from the second store. Let p be the cost for renting a movie or a video game at the second store.</p> $2m + 3g = 2p + 3p$ $2(4.50) + 3(5.75) = 5p$ $26.25 = 5p$ $p = 5.25$ <p>So, Beth’s store charges \$5.25 for each movie or video game rental.</p>
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	The response is incorrect or irrelevant.

#8 M48753 Rubric

Score	Description
3	<p>Student response includes each of the following 6 elements.</p> <ul style="list-style-type: none">• Correct linear regression equation• Valid variable definitions• Valid justification of the fit of the model referencing the scatter plot• Valid justification of the fit of the model referencing the correlation coefficient• Valid prediction using the given model• Valid discussion of the usefulness of the prediction <p>Sample Student Response: The linear regression equation for the data is $y = 83.9x + 42.3$, where x is the fuel capacity and y is the weight. The correlation coefficient is $r = 0.9951$, which suggests that the fit is good since the correlation is very close to 1. A scatter plot of the data shows that the fuel capacity and the weight increase in a linear pattern. Thus, the linear model is appropriate. Since $y = 83.9(6) + 42.3 \approx 546$, the linear model predicts a total weight of about 546 pounds for a motorcycle with a fuel capacity of 6 gallons. Since 6 gallons is well outside the range of the data values, the predicted weight may not be accurate and should be used with caution.</p> <p>Note: For element 4, the justification referencing the correlation coefficient can be a second separate justification or included in the justification for element 3.</p>
2	Student response includes any 4 or 5 of the above elements.
1	Student response includes any 2 or 3 of the above elements.
0	The response includes 1 of the above elements or is incorrect or irrelevant.

#12 VF564797 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none">• Component 1 = 1 point<ul style="list-style-type: none">○ A simple statement of no without any explanation or justification somewhere in the response earns the answer point.○ A wrong answer cannot be justified. If a student answers only yes, no points can be earned for the entire task. (However, if the response says something like yes, the algebra is correct, but then goes on to show that the solution does not work in the original equation, the answer point can be earned back along with the reasoning.)• Component 2 = 1 point<ul style="list-style-type: none">○ Checking the solution in the equation <p>Sample Student Response:</p> <p>The solution is not correct because 4 does not create a true statement (or 4 creates an inconsistency) when substituted for x in the original equation, as shown.</p> $8 - \sqrt{4} = 10$ $8 - 2 = 10$ $6 \neq 10$ <p>Therefore, $x = 4$ is not a solution to the equation.</p> <ul style="list-style-type: none">• Component 3 = 1 point<ul style="list-style-type: none">○ Reasoning <p>Sample Student Response:</p> <p>Mark created an extraneous solution when he squared both sides of the equation. OR $\sqrt{x} = -2$ has no real number solution. Therefore, the original equation has no solution. OR Sometimes, when you use the method of raising both sides of an equation to an even power, you create unintended, or extraneous solutions.</p> <p>Note: The response can appeal to either the extraneous solution reason or the no real solution reason to earn the point. Both are not needed.</p>

Note: Credit for a correct answer of 'no' can be earned as long as the response does not include clear indication of inappropriate work, such as indication that the algebra in the prompt was flawed. Note that inappropriate work such as this is not the same as incorrect work, such as an attempt to check the solution given in the prompt that contains a calculation error.

Some examples where credit for the first element is earned may include:

- An answer of no is given with correct and appropriate work for the second or third elements, or;
- An answer of no is given with incorrect but appropriate work for the second or third elements, or;
- An answer of no is given with vague or incomplete work for the second or third elements that does not clearly indicate inappropriate operations, or;
- An answer of no is given, by itself and without any further work (as per the first note of the rubric), or;
- An answer of yes is given that specifically addresses the algebra in the prompt (and not the solution) with work that demonstrates that the solution does not work in the original equation (as per the second note of the rubric).

Some examples where credit for the first element is not earned may include:

- An answer of no is given with inappropriate work for the second or third elements, or;
- An answer of yes is given that specifically addresses the solution given in the prompt (and not the algebra).

2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#18 M41740 Rubric

Score	Description
4	<p>Student response includes each of the following 4 elements:</p> <ul style="list-style-type: none"> • Correctly determines the x-intercepts of the function • Correctly determines the y-intercept of the function • Correctly determines the coordinates at the minimum of the quadratic function • Correctly determines when the function is increasing or decreasing <p>Sample Student Response:</p> <p>To determine the x-intercepts, use factoring. The factors will reveal the x-intercepts.</p> $x^2 + x - 6 = (x + 3)(x - 2)$ <p>Set each factor equal to 0. Use the zero-product property to solve two simple linear equations.</p> $(x + 3)(x - 2) = 0$ $x + 3 = 0 \qquad \qquad \qquad x - 2 = 0$ $x = -3 \qquad \text{OR} \qquad \qquad \qquad x = 2$ <p>The x-intercepts are 2 and -3.</p> <p>To determine the y-intercept, find $f(0)$.</p> $f(0) = 0^2 + 0 - 6$ $= -6$ <p>The y-intercept is -6.</p> <p>To determine the coordinates of any local maximum or minimum, complete the square.</p> $x^2 + x - 6 = \left(x^2 + x + \frac{1}{4}\right) - 6 - \frac{1}{4}$ $= \left(x + \frac{1}{2}\right)^2 - \frac{25}{4}$ $= \left(x - \left(-\frac{1}{2}\right)\right)^2 - \frac{25}{4}$ <p>The graph opens upward. The expression $x - \left(-\frac{1}{2}\right)$ reveals the x-coordinate of any local minimum. The coordinates of the local minimum are $\left(-\frac{1}{2}, -\frac{25}{4}\right)$.</p> <p>If $x < -\frac{1}{2}$, the function is decreasing. If $x > -\frac{1}{2}$, the function is increasing.</p> <p>Note: If the individual answers are unlabeled, they can be credited if they are in the same order as listed in the prompt.</p>
3	Student response includes 3 of the above elements.
2	Student response includes 2 of the above elements.

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