

Released Items Answer and Alignment Document

Mathematics – Grade 6

Spring 2019

Item Number	Entity ID	Answer Key	Evidence Statement Key
1.	M22302	C	6.RP.2
2.	M20810P	B	6.NS.6b-2
3.	VH083632	A, C, D	6.NS.7c-1
4.	M20819P	B, D	6.EE.4
5.	M21710	D	6.G.2-1
6.	M23068	The center of the boys' data is <input type="text" value="approximately equal to"/> the center of the girls' data. The spread of the boys' data is <input type="text" value="less than"/> the spread of the girls' data.	6.SP.2
7.	M21713	A	6.Int.1
8.	VH013388	A	6.SP.4
9.	M25394	See Rubric	6.D.3
10.	VH228966	Part A: Least Greatest <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px;">Employee G</div> <div style="border: 1px solid black; padding: 2px 5px;">Employee H</div> <div style="border: 1px solid black; padding: 2px 5px;">Employee F</div> <div style="border: 1px solid black; padding: 2px 5px;">Employee J</div> </div> Part B: 275 Part C: 180 Part D: 840	6.RP.3b
11.	1103-M20660	Part A: See Rubric Part B: See Rubric	6.C.4
12.	M20051P	A	6.RP.3a
13.	VF643078	See Rubric	6.C.1-1

14.	M25356	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Equation: $n = \frac{38.97}{3}$ Cost: \$ 12.99 </div> Notes: <ul style="list-style-type: none"> • Other valid equations are acceptable. • Correct solutions based on incorrect equations are acceptable. 	6.EE.7
15.	1298-M21432	Part A: See Rubric Part B: See Rubric	6.D.2
16.	1601-M20787P	Part A: A Part B: B	6.SP.5

#9 M25394 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none"> • Modeling component = 1 point <ul style="list-style-type: none"> ○ Valid equation that can be used to estimate the average monthly lunch cost • Modeling component = 1 point <ul style="list-style-type: none"> ○ Valid work or explanation for provided estimate • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct estimated lunch cost for 26 employees based on equation given <p>Sample Student Response:</p> <p>First I need to estimate the monthly cost. Although there is an increase over the three months, I will use an average since it is only 3 data points. So I added the three amounts and divided by 3. Since I am estimating, I dropped the cents.</p> $\frac{147 + 152 + 165}{3} \approx 155$ <p>So, I estimate it costs about \$155 per month for 18 employees.</p> <p>Since $\frac{155}{18} \approx 8.61 \approx 9$, I used \$9 as my estimate for the amount per employee.</p>

	<p>Then I wrote the equation $y = 9x$.</p> <p>With 8 more employees, there would be 26 employees since $18 + 8 = 26$. Using my equation, I substitute 26 for x and solve.</p> $y = 9 \cdot 26$ $y = 234$ <p>So, I estimate \$234 for the cost for 26 lunches.</p> <p>Note: Accept a range from \$8 to \$10 for the amount per employee.</p> <p>Note: Accept a range from \$208 to \$260 for the cost for 26 lunches based on response for the average cost of a lunch.</p> <p>Or other valid response.</p>
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.

#11 1103-M20660 Rubric Part A

Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct opposite value of $-4\frac{1}{2}$ • Reasoning component = 1 point <ul style="list-style-type: none"> ○ Valid explanation relating $-4\frac{1}{2}$ and its opposite value using the number line <p>Sample Student Response:</p> <p>The opposite value of $-4\frac{1}{2}$ is $4\frac{1}{2}$.</p> <p>The opposite of $-4\frac{1}{2}$ is related to $4\frac{1}{2}$ because each value describes the same distance away from 0 on the number line. The sign indicates the direction of the number. The number $-4\frac{1}{2}$ is $4\frac{1}{2}$ units below 0, while $4\frac{1}{2}$ is $4\frac{1}{2}$ units above 0.</p>

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

#11 1103-M20660 Rubric Part B

Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct inequality comparing the opposite of 2 and the opposite of n • Reasoning component = 1 point <ul style="list-style-type: none"> ○ Valid explanation of provided inequality using the number line as a reference <p>Sample Student Response:</p> $-2 > -n$ <p>Since n is more than 2, it is above 2 and farther away from 0 than 2. When you take the opposite of 2, you get -2. When you take the opposite of n, you get $-n$. The opposite of n will be farther away from 0 than -2. So that means $-2 > -n$</p>
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#13 VF643078 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ The student indicates that both expressions are equivalent to the expression $10x + 15y$ • Reasoning component = 1 point <ul style="list-style-type: none"> ○ Correct reasoning using the distributive property • Reasoning component = 1 point <ul style="list-style-type: none"> ○ Correct reasoning using the associative property, the commutative

	<p>property, or by “combining like terms”</p> <p>Sample Student Response:</p> $5(2x + 3y) = 10x + 15y \text{ by distribution}$ $3x + 6y + x + 3(2x + 3y)$ $= 3x + 6y + x + 6x + 9y, \text{ by distribution}$ $= 3x + x + 6x + 6y + 9y, \text{ by the associative property}$ $= 10x + 15y, \text{ by combining like terms}$ <p>Therefore, yes, they are both equivalent to each other because they both are equal to $10x + 15y$.</p> <p>Notes:</p> <ul style="list-style-type: none"> • The student may receive both reasoning points if they reason by applying the substitution property and evaluate for stated values of x and y. • The student may receive a combined total of 2 points if the reasoning processes are correct but the student makes one or more computational errors resulting in incorrect answers. • The student cannot receive more than 1 point for showing the equivalent expression $10x + 15y$ for both expression 1 and expression 2 if he/she shows no work or insufficient work to indicate a correct reasoning process.
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.

#15 1298-M21432 Rubric Part A	
Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct dimensions of the fish tank, 22 inches by 28 inches by 28 inches • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct volume, in cubic inches, of the fish tank, 17,248

	<ul style="list-style-type: none"> • Modeling component = 1 point <ul style="list-style-type: none"> ○ Valid work shown or explanation given <p>Sample Student Response:</p> <p>The dimensions of the fish tank are 22 inches by 28 inches by 28 inches.</p> <p>1 foot 10 inches = 12 inches + 10 inches = 22 inches 2 feet 4 inches = 24 inches + 4 inches = 28 inches 2 feet 4 inches = 24 inches + 4 inches = 28 inches The volume of the fish tank is 17,248 cubic inches. $V = l \times w \times h$ $V = 22 \times 28 \times 28$ $V = 17,248$</p> <p>Or other valid response.</p>
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.

#15 1298-M21432 Rubric Part B

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct number of gallons the fish tank holds, 74.6 (or 74.7 or 74), or number of gallons based on volume calculated in Part A • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct number of goldfish, 7, or number of goldfish based on number of gallons calculated above • Modeling component = 1 point <ul style="list-style-type: none"> ○ Valid work shown or explanation given <p>Sample Student Response:</p> <p>The fish tank holds 74.6 (or 74.7 or 74) gallons.</p> <p>The volume of the fish tank is 17,248 cubic inches and 1 gallon of water is 231 cubic inches.</p> <p>So, to find the number of gallons that 17,248 cubic inches is equal to, I divide</p>

	<p>17,248 by 231 and get $74.\overline{6}$ (or number of gallons based on volume calculated in Part A).</p> <p>The maximum number of gold fish that Darren can put in this fish tank is 7 goldfish (or number of goldfish based on number of gallons calculated above).</p> <p>If each gold fish needs 10 gallons of water, then $74 \div 10 = 7.4$ so 7 goldfish (accept 6 if student mentions leaving air space at the top of the tank and shows work adjusting the number of gallons of water needed).</p> <p>Or other valid response.</p>
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.