Item Number	Answer Key	Evidence Statement Key
1.		8.F.5-2
2.	 Part A: Part B: B	8.G.3
3.	BE	8.EE.2
4.	B	8.EE.8b-3
5.	BEF	8.F.3-2
6.	AC	8.EE.8a
7.	B	8.G.1c
8.	AD	8.EE.1
9.	C	8.SP.2
10.	A	8.EE.5-1
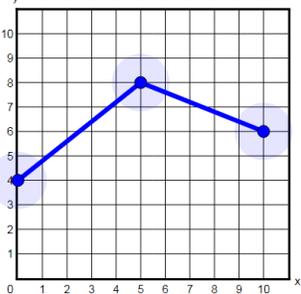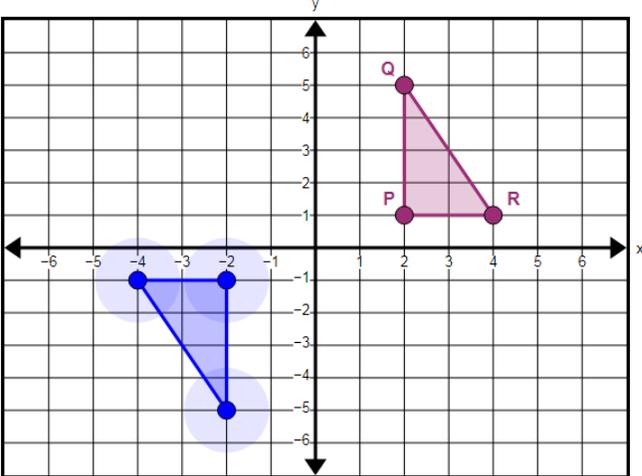
11.	Part A: 3 or equivalent number Part B: 60 or equivalent number	8.EE.8c
12.	See Rubric	8.D.4
13.	See Rubric	8.C.1-1
14.	Part A: B Part B: C Part C: D Part D: B	8.G.9
15.	C	8.EE.4-2
16.	15 or equivalent number	8.G.8
17.	3.42 must be number to the hundredths	8.EE.5-2
18.	Part A: A Part B: B	8.SP.3
19.	Part A: C Part B: B Part C: 45 or equivalent number Part D: 14.50 number must be to the hundredths	8.EE.C.Int.1
20.	0.75 > 0.7 or equivalent inequality	8.F.2
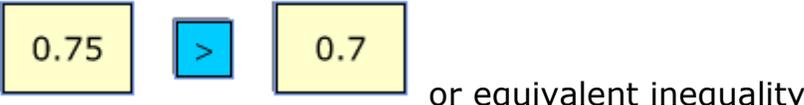
#12 Rubric VH057654	
Score	**Description**

3	Student response includes the following 3 elements.
	
	• **Modeling component** = 3 points
	    o Valid model of a linear relationship for the gallons of milk produced by Holstein cows.
	    o Valid model of a linear relationship for the gallons of milk produced by Jersey cows.
	    o Valid use of the models to determine which dairy farm produces the most milk and how much more milk in a two-month period.
	
	Sample Student Response:
	
	To determine the number of gallons of milk produced by 110 Holstein cows in two months, I noticed that the relationship appears to be almost linear, so I drew a trend line. It passed through several of the points on the graph. My

line appears to go through the points (0, 0) and (110, 800). So, the farm with the Holstein cows would produce 800 gallons of milk in one day. The information in the table can be used to determine the number of gallons of milk produced by Jersey cows in two months. First, I checked to see if the information in the table was proportional or close to proportional. By dividing the number of gallons of milk produced by the number of cows for each row, I got $\frac{175}{30} \approx 5.83$, $\frac{348}{60} = 5.8$, $\frac{526}{90} \approx 5.84$, $\frac{695}{120} \approx 5.79$, $\frac{866}{150} \approx 5.77$, and $\frac{1052}{180} \approx 5.84$.

Since these are all close to 5.8, I assumed a proportional linear relationship with the equation $y = 5.8x$. So the dairy farm with Jersey cows would produce 110(5.8) = 638 gallons of milk in one day.

Martin's Dairy Farm will produce 48,800 gallons of milk in a two-month period and Stinson's Dairy Farm will produce 38,918 gallons of milk in a two-month period. Therefore, Martin's Dairy Farm with Holstein cows would produce more milk. It will produce approximately 48,800 − 38,918 = 9,882 gallons more milk in a two-month period.

Notes:

- There are multiple ways to model the graph to find an estimate.
- The acceptable range for the gallons of milk for the Holstein cows must be between 660 and 880, inclusive. No supporting work is necessary.
- Students may receive 1 modeling point for the rate for gallons of milk per cow per day, without supporting evidence. The rate falls in the range of 6 to 8.
- Simply referring to plotted points on the graph is insufficient.
- There are multiple ways to model the table to find an estimate. For example, the student may get the rate for 10 cows (56 gallons) then doubling for 20 cows (112 gallons). Then add 112 gallons to 526 gallons to get an estimate of 638 gallons.
- The acceptable range for the number of days in a two-month period is between and including 56 (4 weeks at 7 days each) and 62 (July and August).
- For Holstein cows, using 760 for a day, the amount produced in a two-month period or approximately 61 days would be 760 x 61 or approximately 46,360 gallons. Using 850 for a day, the amount produced in a two-month period would be 850 x 61 or approximately 51,850 gallons. Using 800 for a day, the amount produced in a two-month period would be 800 x 61 or approximately 48,800 gallons.

	• For Jersey cows, using 630 gallons of milk per day, the amount produced in a two-month period or approximately 61 days, would be 630 x 61 = 38,430 or 38,430 gallons. Using 650 gallons of milk per day, the Jersey cows would produce 650 x 61 = 39,650 gallons of milk in a two-month period. Using 638 gallons of milk per day, the Jersey cows would produce 638 x 61 = 38,918 gallons of milk in a two-month period. • Students may receive 1 modeling point for the rate for gallons of milk per cow per day, without supporting evidence. The rate falls in the range of 5.77 to 5.84. • The acceptable range for the gallons of milk for the Jersey cows for one day is between 634 and 642.4, inclusive. Students must provide calculations or explanation. Simply referring to values in the table is insufficient.
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.

#13 Rubric VH049778	
Score	**Description**

3	Student response includes the following 3 elements.
	
	• **Computation component** = 1 point
	   o The student indicates a valid equation of the graphed line is $y = -\frac{1}{2}x + 4$ or an equivalent equation where the slope and the slope and y-intercept are immediately evident (for example $y = 4 - 0.5x$)
	
	• **Reasoning component** = 2 points
	   o Valid explanation of a method to find the slope of the graphed line
	   o Valid explanation of a method to find the y-intercept of the graphed line
	
	Sample Student Response:
	
	I found two points on the line and subtracted the x- and y- coordinates and divided the change in the y-coordinates by the change in the x-coordinates

	OR other equivalent description.
	Since the graph appears to cross the *y*-axis at (0,4), the *y*-intercept of the line is 4.
	Notes:
	• The point can be earned, even if the coordinates used for the calculation are not shown.
	• The student does not have to use the terms "intercept" and "slope" to receive a point for reasoning.
	• The student could also be given credit for both parts if they write the equation *y=mx + b*, select two points on the graph of the equation, and use the *x* and *y* values of the points to solve the system of equations for *m* and *b*.
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.