Name:_____

Final
Constructed Response

1. Small baskets of tomatoes are sold at a vegetable stand for $3 per basket. Large baskets of tomatoes are sold at the stand for $5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays $36.

A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay $45.

B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

2. Tammy and Keith each work two part-time jobs in the summer mowing lawns and raking yards. Tammy earns $10 for each lawn she mows and $5 for each yard she rakes. She wants to earn more than $200 from her part-time jobs. Keith earns $12 for each lawn he mows and $3 for each yard he rakes. He wants to earn more than $180 from his part-time jobs.

A. Write a system of linear inequalities to model the number of lawns they each mow (x) and the number of yards they each rake (y).

Tammy: _____

Keith: _____

By the end of the summer, Tammy and Keith had mowed the same number of lawns and raked the same number of yards. Keith had met his goal of earning more than $180, but Tammy did not meet her goal of earning more than $200.

B. What is a possible combination of the number of lawns they could have each mowed and the number of yards they could have each raked?

_____ lawns mowed

_____ yards raked

3. Kent listed the coordinates of all the light poles in his town, relative to the center of town. Kent notes that the poles located at the points (2, 6), (4, 10), (2, 8), and (1, 4) need repairs.

A. What is the domain of this relation?

domain: _____

B. Which pole should Kent remove from his list in order to have the remaining poles lie in a straight line?

pole coordinates: _____

Kent would like a pole to be placed at coordinates $(x, 0)$.

C. What should be the value of x in order for this pole to fall in line with the other three remaining poles from **part B**?

$x =$ _____

D. What is the equation of the line that connects the locations of these four poles?

equation: _____

4. The list below shows the number of miles Omar rode his bike on each of six consecutive days.

$$8, \quad 2, \quad 1, \quad 7, \quad 2, \quad 6$$

A. What are the median and mode distances, in miles, Omar rode his bike?

median: _____   mode: _____

Omar found the range of the distances of his bike rides to be 7 miles.

B. Explain why the range does **not** describe a typical length of Omar's bike rides.

C. How far does Omar need to ride his bike on day seven to have a **mean** distance of 5 miles? Show or explain all your work.