



Rubric and Sample Responses

Question 1

RUBRIC

Score	Description
3	Response demonstrates thorough understanding of opposites on the coordinate plane. <ul style="list-style-type: none">1 point for each correct set of coordinates. (2 points)1 point for correct explanation.
0	The student's response is mostly or all incorrect.

SAMPLE RESPONSE

Piglet 5 $(-6, 5)$

Piglet 12 $(6, 5)$

To find the distance, you add the absolute value of the numbers.

Question 2

RUBRIC

Score	Description
12	Response demonstrates thorough understanding of coordinate points and vertical and horizontal distances from the axes. <ul style="list-style-type: none">(Subtract 1 point for each incorrect cell.)
0	The student's response is mostly or all incorrect.

SAMPLE RESPONSE

Piglet Number	Coordinates	Units from y-Axis
2	$(6, -5)$	6 units
5	$(-6, 5)$	6 units
6	$(-6, 10)$	6 units
12	$(6, 5)$	6 units

What do the coordinates in the table have in common?

They have the same $|x|$ value.

Question 3**RUBRIC**

Score	Description
2	Response demonstrates thorough understanding of the impact of reflections on coordinates. <ul style="list-style-type: none">• 1 point for correctly identifying a reflection.• 1 point for correctly explaining effect of a reflection on the coordinates.
0	The student's response is mostly or all incorrect.

SAMPLE RESPONSE

Piglet 2, because its nose coordinates have the same x-value and the opposite y-value as Piglet 12.

Question 4**RUBRIC**

Score	Description
2	Response demonstrates thorough understanding of the relationship between piglet size and zones on the heated mat grid.
0	The student's response is mostly or all incorrect.

SAMPLE RESPONSE

Piglets with lower birth weight tend to get cold, so they need a place to sleep warmer than that of larger piglets. Larger piglets prefer slightly cooler zones, because they sometimes get too warm.

Question 5**RUBRIC**

Score	Description
2	Response demonstrates thorough understanding of how to divide fractions. <ul style="list-style-type: none">• 1 point for correct answer.• 1 point for explanation.
0	The student's response is mostly or all incorrect.

SAMPLE RESPONSE

$$\frac{1}{12} \div \frac{1}{6} = \frac{1}{12} \times \frac{6}{1} = \frac{6}{12} = \frac{1}{2} \text{ foot.}$$

Question 6

RUBRIC

Score	Description
6	<p>Response demonstrates thorough understanding of operations with decimals and whole numbers.</p> <ul style="list-style-type: none"> All computations are correct. (3 points, 1 for part a and 2 for part b) All strategies are correct. (3 points) <p>If student makes a mistake in one computation, do not penalize for carrying the mistake to the next computation.</p>
0	The student's response is mostly or all incorrect.

SAMPLE RESPONSE

Part a.

$$214,000,000 \times 2,000/180 = 2,377,777,778 \text{ pigs}$$

Part b.

$$0.91 \times 12 = 10.92$$

$$0.93 \times 12 = 11.16$$

$$2,377,777,778 \div 10.92 \text{ per litter} = 217,745,218 \text{ litters at 91\% survival}$$

$$2,377,777,778 \div 11.16 \text{ per litter} = 213,062,525 \text{ litters at 93\% survival}$$

$$217,745,218 - 213,062,525 = 4,682,693 \text{ fewer litters per year}$$

Question 7

RUBRIC

Score	Description
4	<p>Response demonstrates thorough understanding of operations with decimals and whole numbers.</p> <ul style="list-style-type: none"> All computations are correct. (2 points) Explanations are correct. (2 points)
0	The student's response is mostly or all incorrect.

SAMPLE RESPONSE

$$240 / 365 = .65753425 \text{ pounds per day per family of four}$$

$$.65753425 / 4 = .16438356 \text{ pounds per day per person}$$

Question 8

RUBRIC

Score	Description
4	Response demonstrates thorough understanding of the implications of the mathematics in this exercise.
3	Response demonstrates general understanding of the implications of the mathematics in this exercise.
2	Response demonstrates partial understanding of the implications of the mathematics in this exercise.
1	Response demonstrates limited understanding of the implications of the mathematics in this exercise.
0	The student's response is mostly or all incorrect.