ADDITIONAL SAMPLE ITEM KEYS

Item	Standard/ Element	DOK Level	Correct Answer	Explanation
1	MGSE9-12G.CO.10	2	A	The correct answer is (A) because each line is an example of alternate interior angles being congruent. Choice (B) is incorrect because the angles shown are not corresponding angles. Choice (C) is incorrect because the angles shown are not vertical angles. Choice (D) is incorrect because the angles shown are not alternate exterior angles.
2	MGSE9-12A.GPE.1	3	D	The correct answer is choice (D). Choice (A) is incorrect because the radius is not squared. Choice (B) is incorrect because it uses the wrong coordinate for the *x*-value and does not square the radius. Choice (C) is incorrect because it confuses the *x*- and *y*-coordinates
3	MGSE9-12G.C.2	1	C	The correct answer is choice (C) because an inscribed angle is one-half the measure of the arc it creates. Choice (A) is incorrect because it is one-quarter the measure of the arc it creates. Choice (B) is incorrect because it is one-third the measure of the arc it creates. Choice (D) is incorrect because it is the full measure of the arc it creates.
4	MGSE9-12 G.GMD.04	2	A	The correct answer is choice (A) because a rectangle is the correct cross-section. Choices (B), (C), and (D) are incorrect because they represent the incorrect cross-sections.
5	MGSE9-12G.SRT.8	3	C	The correct answer is choice (C) 23 ft. The ratio of the distance from the short ladder to the wall to the length of the short ladder is equal to the cosine of the angle the ladder forms with the ground. So, the short ladder is $8\cos(70°) = 2.736$ feet from the wall, and the long ladder is 7.736 feet from the wall. Similarly, the ratio of the distance from the long ladder to the wall to the length of the long ladder is equal to the cosine of the angle the ladder forms with the wall. So, the long ladder is $7.736/\cos(70°) \approx 22.62$ feet. Choice (B) is incorrect because it is the sum of the lengths in the figure. Choices (A) and (D) are incorrect because they use incorrect trigonometric ratios.
6	MGSE9-12G.MG.3	2	C	The correct answer is choice (C) because $PQ = \sqrt{3^2 + 4^2} = 5$, $QR = \sqrt{1^2 + 4^2} = \sqrt{17}$, and $RP = 4$. Choice (A) incorrectly applies the Pythagorean theorem. Choices (B) and (D) are incorrect because they estimate the lengths without the Pythagorean theorem.

Item	Standard/ Element	DOK Level	Correct Answer	Explanation
7	MGSE9-12G.GPE.7	2	B	The correct answer is choice (B) $4\sqrt{41}$ units. Apply the distance formula to find the length of one side, which is $\sqrt{41}$. Since this is a square, multiply $\sqrt{41}$ by 4 to obtain the perimeter. Choice (A) is incorrect because the number of unit squares on a line segment were counted to estimate the length and then multiplied by 4. Choice (C) is incorrect because the length of the diagonal is multiplied by 2. Choice (D) is incorrect because it is the approximate area of the square.
8	MGSE9-12S.CP.2	2	A	The correct answer is choice (A). The student multiplied the probabilities of the two independent events. The student divided the probabilities in (B) and in (C) the complement of the probability from (B) was given. The probabilities were added in (D).
9	MGSE9-12G.C.5	2	N/A	See scoring rubric and exemplar responses on page 30.
10	MGSE9-12G.SRT.8	3	N/A	See scoring rubric and exemplar responses beginning on page 31.

EXAMPLE SCORING RUBRICS AND EXEMPLAR RESPONSES

Item 9

Scoring Rubric

Points	Description
2	The response achieves the following: Student demonstrates full understanding of deriving the area of a sector of a circle. Award 2 points for a student response that contains both the following elements: • An explanation of a valid process for determining the area of one section of the garden • A final answer of 4.5π or 14.13 feet^2
1	The response achieves the following: Student shows partial understanding of deriving the area of a sector of a circle. Award 1 point for a student response that contains only one of the following elements: • An explanation of a valid process for determining the area of one section of the garden • A final answer of 4.5π or 14.13 feet^2
0	The response achieves the following: Student demonstrates little to no understanding of deriving the area of a sector of a circle.

Exemplar Response

Points Awarded	Sample Response
2	I can find the area of the entire circle and divide by 8. This equals 4.5π.
1	4.5π feet^2
0	*Student does not produce a correct response or a correct process.*

Item 10

Scoring Rubric

Points	Description
4	The response achieves the following: Response demonstrates a complete understanding of using trigonometric ratios and the Pythagorean Theorem to solve real-world problems. Give 4 points for correct responses to both Part A and Part B with valid work shown. **Scoring Note**: There are other valid ways of solving. Accept any valid method.
3	The response achieves the following: Response demonstrates a nearly complete understanding of using trigonometric ratios and the Pythagorean Theorem to solve real-world problems. Give 3 points for correct responses to both Part A and Part B with valid work shown for only 1 part. **Scoring Note**: There are other valid ways of solving. Accept any valid method.
2	The response achieves the following: Response demonstrates a partial understanding of using trigonometric ratios and the Pythagorean Theorem to solve real-world problems. Give 2 points for any of the following response types: • Correct responses to both Part A and Part B with no valid work shown • Correct response for Part A with valid work shown with no correct work in Part B • Correct response for Part B with valid work shown with no correct work in Part A (Incorrect results in Part A can be used in a correct method in Part B.) **Scoring Note**: There are other valid ways of solving. Accept any valid method.
1	The response achieves the following: Response demonstrates a minimal understanding of using trigonometric ratios and the Pythagorean Theorem to solve real-world problems. Give 1 point for either of the following: • Correct response to either Part A or Part B with no valid work shown for either • Correct method to one part shown, but it contains a computational error that results in an incorrect solution **Scoring Note**: There are other valid ways of solving. Accept any valid method.
0	The response achieves the following: Response demonstrates no understanding of using trigonometric ratios and the Pythagorean Theorem to solve real-world problems.

Exemplar Response

Points Awarded	Sample Response
4	Part A: Jane's ramp's horizontal length: 14cos(30) = 12.12 inches Mark's ramp's horizontal length: 10cos(45) = 7.1 inches Part B: Jane's car is launched from 14sin(30) = 7 inches Mark's car is launched from 10sin(45) = 7.1 inches So, Mark's car is launched from a higher point.
3	Part A: Jane's ramp's horizontal length = 14cos(30) = 12.1 inches and Mark's ramp = 10cos(45) = 7.1 inches Part B: Mark's car is launched from a higher point.
2	Part A: Jane's ramp's horizontal length = 12.1 inches and Mark's ramp = 7.1 inches Part B: Mark's car is launched from a higher point.
1	Part A: Jane's ramp's horizontal length = 12.1 inches and Mark's ramp = 7.1 inches
0	*Student does not produce a correct response or a correct process.*