

# MeTEOR Performance Task

## Algebra I

Mathematics  
Quadratics in Volleyball

## Complete Performance Task Scoring Rubric *Quadratics and Volleyball*

19-21 Proficient 17-18 Good 15-16 Satisfactory 13-14 Poor 0-12 Unsatisfactory

	Depth of Knowledge Level	Points	Total Possible Points for Task	Total Points Earned by Student
<p><b>Task 1:</b></p> <p>A. <math>ax^2 + bx + c = 0</math></p> <p>B. Factoring, Completing the square, Using the Quadratic Formula and Graphing</p> <p>C. Completing the square</p> <p>D. 1<sup>st</sup> Step: Take half the coefficient of x 2<sup>nd</sup> Step: Square it 3<sup>rd</sup> Step: Add the result</p> <p>E. 25, 36, 6.25, 2.25</p>	<b>1</b>	<p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p>	<b>5</b>	
<p><b>Task 2:</b></p> <p>A. <math>x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}</math></p> <p>B. discriminant</p> <p>C. complex</p> <p>D. {5,-6}, {-6} {5, 2}, {3,-0.4}</p> <p>E. 255 meters 8 seconds and 12 seconds 20 seconds</p>	<b>1</b>	<p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p>	<b>5</b>	

<p><b>Task 3:</b></p> <p>A. <math>x = 5</math></p> <p>B. Answers will vary. Possible Explanation: “First, I subdivided the irregular shape into two smaller rectangles. Then, I found the area of each rectangle by multiplying the polynomials together and adding their products. Next, I set it equal to 80 and solved. Since there is no negative distance, I used the solution of 5.”</p> <p>C. 110 squared meters</p> <p>D. Answers will vary. Possible Explanation: “Removing the trees in the bottom right corner of the property would allow the pen to become a rectangle as stated in the problem. Since opposite sides of a rectangle are congruent, I used segment addition to find the right side to equal <math>(x + 5)</math>. The top and bottom would both be <math>(2x + 1)</math>. I multiplied these lengths and widths together to find the area of the new pen and got <math>2x^2 + 11x + 5</math>. I substituted 5 from Part A into the problem to get 110 square meters for the new area.”</p>	<p><b>2</b></p>	<p><b>1</b></p> <p><b>2</b></p> <p><b>1</b></p> <p><b>2</b></p>	<p><b>6</b></p>	
<p><b>Task 4:</b></p> <p>A. 2.65 meters</p> <p>B. 1.4 seconds</p> <p>C. 1.53 seconds</p> <p>D. 3.45 meters Answers will vary. Possible Explanation: “I went back to Part B where the time was 1.4 seconds. Since that was the total time from leaving her hand to being one meter</p>	<p><b>3</b></p>	<p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>2</b></p>	<p><b>5</b></p>	

<p>above the ground on the way back down, I cut it in half and got .7 for half the time. This is the number I substituted back into the equation for the time. Once I worked out the equation, I had to add 1 back into my answer because she served the ball one meter off the ground.”</p>				
<b>TOTAL POINTS:</b>				



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