

Name: _____

Date: _____

Part A

List the steps to solve the equation $x^2 + 12x - 28 = 0$ by completing the square, and give the solution or solutions.

Enter your work and your answers in the space provided.

Part B

Explain what value or values of c make the equation $x^2 + 12x + c = 0$ have one and only one solution. Justify your answer.

Enter your answer and your justification in the space provided.

Task is worth a total of 4 points.

Rubric Part A	
Score	Description
3	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ Algebraic or written explanation for solving the equation • Computation component = 2 point <ul style="list-style-type: none"> ○ Solution of $x = 2$ or -14 $x^2 + 12x - 28 = 0$ $x^2 + 12x = 28$ <p>Sample Student Response:</p> $x^2 + 12x + 36 = 28 + 36$ $(x + 6)^2 = 64$ $x + 6 = \pm 8$ $x = 8 - 6 = 2 \text{ or } -8 - 6 = -14$ $x^2 + 12x - 28 = 0$ $x^2 + 12x = 28$ $x^2 + 12x + 36 = 28 + 36$
2	Has the computation component only. Or has the reasoning component and found one only one of
1	Student response is incorrect or irrelevant.
Rubric Part B	
Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ Valid explanation • Computation component = 1 point <ul style="list-style-type: none"> ○ Solution of $c = 36$ <p>Sample Student Response:</p> <p>There would be only one solution if the factors of the polynomial are the same. If the factors are the same, then the identity</p> $(x + a)^2 = x^2 + 2ax + a^2$ <p>can be used. The middle term is 12, so c would have to be the square of half of that number. Therefore $c = 36$</p>

1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

Task Point	Genesis Score
0	55
1	59
2	69
3	79
4	89
5	100

Glow	Grow

