NAME:_____

A2.A.21: Determine the quadratic equation, given the sum and product of its roots

1. 060820b, P.I. A2.A.21
Which equation has roots whose sum is 3 and whose product is -4?

[A] $x^2 + 3x - 4 = 0$ [B] $x^2 + 4x - 3 = 0$

[C] $x^2 - 3x - 4 = 0$ [D] $x^2 - 4x + 3 = 0$

2. 010919b, P.I. A2.A.21
Juan has been told to write a quadratic equation where the sum of the roots is equal to -3 and the product of the roots is equal to -9. Which equation meets these requirements?

[A] $2x^2 + 6x - 18 = 0$

[B] $(x + 3)(x + 9) = 0$

[C] $x^2 + 3x + 9 = 0$ [D] $x^2 - 12x + 27 = 0$

3. 010830b, P.I. A2.A.21
Write a quadratic equation such that the sum of its roots is -5 and the product of its roots is 6. What are the roots of this equation?

A2.A.21: Determine the quadratic equation, given the sum and product of its roots

[1] C

[2] A

[4] $x^2 + 5x + 6 = 0$ or an equivalent equation and -3 and -2, and appropriate work is shown, such as using the sum and product formulas or factoring the equation.
[3] Appropriate work is shown, but one computational or factoring error is made.
or [3] The expression $x^2 + 5x + 6 = 0$ is written and -3 and -2, and appropriate work is shown.
[2] Appropriate work is shown, but two or more computational or factoring errors are made.
or [2] Appropriate work is shown, but one conceptual error is made.
or [2] A correct quadratic equation is written, and appropriate work is shown, but the roots are not found.
or [2] Appropriate work is shown to find -3 and -2, but no quadratic equation is written.
[1] Appropriate work is shown, but one conceptual error and one computational or factoring error are made.
or [1] $x^2 + 5x + 6 = 0$ or an equivalent equation and -3 and -2, but no work is shown.
[0] A correct quadratic equation or -3 and -2, but no work is shown.
or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an
[3] obviously incorrect procedure.