

NAME: _____

1. 080627a, P.I. A.A.5

When Albert flips open his mathematics textbook, he notices that the product of the page numbers of the two facing pages that he sees is 156. Which equation could be used to find the page numbers that Albert is looking at?

[A] $x(x+1) = 156$

[B] $(x+1) + (x+2) = 156$

[C] $(x+1)(x+3) = 156$

[D] $x + (x+1) = 156$

2. 010326a, P.I. A.A.8

Three brothers have ages that are consecutive even integers. The product of the first and third boys' ages is 20 more than twice the second boy's age. Find the age of *each* of the three boys.

3. 060131a, P.I. A.A.8

Find three consecutive odd integers such that the product of the first and the second exceeds the third by 8.

4. 060636a, P.I. A.A.8

Tamara has two sisters. One of the sisters is 7 years older than Tamara. The other sister is 3 years younger than Tamara. The product of Tamara's sisters' ages is 24. How old is Tamara?

5. 060430a, P.I. A.A.8

If $(x - 4)$ is a factor of $x^2 - x - w = 0$, then the value of w is

[A] -12 [B] -3 [C] 3 [D] 12

[1] A

[3] 4, 6, and 8, and appropriate work is shown, such as the correct quadratic equation or trial and error with at least three trials and appropriate checks.

[2] The correct quadratic equation is solved, but one computational error is made, but three appropriate ages are listed.

or [2] The correct quadratic equation is solved, but the negative root is not rejected, but three appropriate ages are listed.

or [2] The correct quadratic equation is solved, but only one age is found.

or [2] The trial-and-error method is used to find a correct solution, but only two trials and appropriate checks are shown.

[1] An incorrect equation of lesser difficulty is solved appropriately, and the three ages are listed.

or [1] An incorrect quadratic equation of equal difficulty is solved appropriately, and the three ages are listed.

or [1] The correct quadratic equation is shown, but more than one computational error is made.

or [1] The correct quadratic equation is shown, but no further correct work is shown.

or [1] 4, 6, and 8, but no work or only one trial with an appropriate check is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[2] incorrect procedure.

[4] 3, 5, and 7, and appropriate work is shown, such as an appropriate quadratic equation or trial-and-error method.

[3] An appropriate equation is written and solved, but one computational error is made.

or [3] An appropriate equation is written and solved, but the even solutions are also listed.

[2] An incorrect quadratic equation is shown, but it is solved appropriately.

or [2] Integers are misrepresented, but the subsequent quadratic equation is solved appropriately.

or [2] An appropriate equation is written and solved, but more than one computational error is made.

or [2] The correct solution is given, but only one trial is shown with appropriate checks when a trial-and-error method is used.

[1] A linear equation is solved appropriately.

or [1] 3, 5, and 7, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[3] incorrect procedure.

[3] 5, and appropriate work is shown, such as the quadratic equation $(x + 7)(x - 3) = 24$ or trial and error with at least three trials and appropriate checks.

[2] A correct quadratic equation is written, but one computational error is made in finding Tamara's age.

or [2] 12 and 2 are found as the sisters' ages, but Tamara's age is not found.

or [2] The trial-and-error method is used to find the correct solution, but only two trials and appropriate checks are shown.

[1] Appropriate work is shown, but two or more computational errors are made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] A correct quadratic equation is written, but no further correct work is shown.

or [1] An incorrect equation of equal difficulty is solved appropriately for Tamara's age.

or [1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.

or [1] 5, but no work or only one trial with an appropriate check is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure.

[5] D _____