1. 010824a, P.I. A.A.1
The larger of two consecutive integers is represented by $x+4$. Which expression represents the *smaller* integer?

[A] $x + 5$ [B] $x + 2$

[C] $x + 6$ [D] $x + 3$

2. 010006a, P.I. A.A.1
If the number represented by n-3 is an odd integer, which expression represents the next greater odd integer?

[A] $n - 2$ [B] $n - 1$ [C] $n - 5$ [D] $n + 1$

3. 010506a, P.I. A.A.1
If $n + 4$ represents an odd integer, the next larger odd integer is represented by

[A] $n + 6$ [B] $n + 3$

[C] $n + 2$ [D] $n + 5$

4. 060806a, P.I. A.A.1
If $2n + 1$ represents an odd integer, the next larger odd integer is represented by

[A] $2n + 2$ [B] $2n - 1$

[C] $2n + 3$ [D] $2n$

5. 080716a, P.I. A.A.1
In the Ambrose family, the ages of the three children are three consecutive even integers. If the age of the youngest child is represented by $x+3$, which expression represents the age of the oldest child?

[A] $x + 6$ [B] $x + 7$

[C] $x + 8$ [D] $x + 5$

6. 010712a, P.I. A.A.1
Which expression represents the product of two consecutive odd integers, where n is an odd integer?

[A] $n(n + 2)$ [B] $n(n + 3)$

[C] $2n + 1$ [D] $n(n + 1)$

7. 080113a, P.I. 7.N.11
If n represents an odd number, which computation results in an answer that is an even number?

[A] $3\times n+1$ [B] $2\times n-1$

[C] $2\times n+1$ [D] $3\times n-2$

8. 060113a, P.I. 7.N.11
If a is an odd number, b an even number, and c an odd number, which expression will always be equivalent to an odd number?

[A] $ac(b)^0$ [B] $a(bc)$

[C] $ac(b)^2$ [D] $ac(b)^1$

9. 060525a, P.I. 7.N.11
If *a* and *b* are both odd integers, which expression must always equal an odd integer?

[A] $a-b$ [B] $a\cdot b$ [C] $a+b$ [D] $\frac{a}{b}$

10. 080326b, P.I. 7.N.11
Tom scored 23 points in a basketball game. He attempted 15 field goals and 6 free throws. If each successful field goal is 2 points and each successful free throw is 1 point, is it possible he successfully made all 6 of his free throws? Justify your answer.

11. 010107a, P.I. A.N.1
If *a* and *b* are integers, which equation is always true?

[A] $a+b=b+a$ [B] $\frac{a}{b}=\frac{b}{a}$

[C] $a+2b=b+2a$ [D] $a-b=b-a$

12. 060828a, P.I. A.N.1
Under which operation is the set {-1, 0, 1} closed?

[A] division [B] multiplication

[C] addition [D] subtraction

13. 010928a, P.I. A.N.1
Under which operation is the set of odd numbers closed?

[A] addition [B] subtraction

[C] division [D] multiplication

14. 010217a, P.I. A.N.1
Which set is closed under division?

[A] whole numbers [B] counting numbers

[C] integers [D] {1}

15. 080129a, P.I. A.N.1
Ramón said that the set of integers is *not* closed for one of the basic operations (addition, subtraction, multiplication, or division). You want to show Ramón that his statement is correct. For the operation for which the set of integers is *not* closed, write an example using:
- a positive even integer and a zero
- a positive and a negative even integer
- two negative even integers

Be sure to explain why *each* of your examples illustrates that the set of integers is *not* closed for that operation.

[1] D

[2] B

[3] A

[4] C

[5] B

[6] A

[7] A

[8] A

[9] B

[2] No, and a correct justification is given.
[1] No, but an incomplete or partially incorrect explanation is given.
[0] No, but no explanation is given.
or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[10] obviously incorrect procedure.

[11] A

[12] B

[13] D

[14] D

[3] All three examples are illustrated under division correctly, such as $2 \div 0$, $-2 \div 4$, $-2 \div -4$, and correct explanations are given.
[2] Only two of the three examples are illustrated and explained correctly.
or [2] All three examples are illustrated correctly, but only one explanation is given or is correct.
or [2] The division examples and explanations are correct, but at most two incorrect examples are also shown, such as examples for addition, subtraction, or multiplication.
[1] The division examples and explanations are correct, but more than two incorrect examples are shown, such as examples for addition, subtraction, or multiplication.
or [1] All three examples are illustrated correctly, but no correct explanation is given.
or [1] Only one correct example with a correct explanation is given.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[15] incorrect procedure.