

Lesson 1-2: Exponents and Order of Operations

Part 1: Simplifying and Evaluating Expressions and Formulas

1. 060314a, P.I. 7.N.11

If the expression $3 - 4^2 + \frac{6}{2}$ is evaluated, what would be done *last*?

- [A] squaring [B] dividing
[C] adding [D] subtracting

2. 080617a, P.I. 8.N.2

If $x = 4$ and $y = -2$, the value of $\frac{1}{2}xy^2$ is

- [A] -4 [B] -8 [C] 8 [D] 32

3. 060432a, P.I. A.CM.5

Brett was given the problem: "Evaluate $2x^2 + 5$ when $x = 3$." Brett wrote that the answer was 41. Was Brett correct? Explain your answer.

4. 080408a, P.I. 8.N.2

If $x = -4$ and $y = 3$, what is the value of $x - 3y^2$?

- [A] -13 [B] -85 [C] -31 [D] -23

5. 010015a, P.I. 8.N.2

If $t = -3$, then $3t^2 + 5t + 6$ equals

- [A] -36 [B] 6 [C] 18 [D] -6

6. 060726a, P.I. 8.N.2

If $a = 3$ and $b = -1$, what is the value of $ab - b^2$?

- [A] 2 [B] 4 [C] -4 [D] -2

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

8. 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] $\frac{a}{b}$ [D] $a + b$

Part 2: Simplifying and Evaluating Expressions with Grouping Symbols

9. 080612a, P.I. 7.N.11

What is the first step in simplifying the expression $(2 - 3 \times 4 + 5)^2$?

- [A] subtract 3 from 2 [B] add 4 and 5
[C] square 5 [D] multiply 3 by 4

10. 060217a, P.I. 7.N.11

The expression $15 - 3[2 + 6(-3)]$ simplifies to

- [A] 63 [B] -45 [C] 192 [D] -33

11. 010406a, P.I. 8.N.2

What is the value of $\frac{x^2 - 4y}{2}$, if $x = 4$ and $y = -3$?

- [A] 2 [B] -2 [C] 14 [D] 10

12. 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] $ac(b)^2$ [B] $ac(b)^1$
[C] $a(bc)$ [D] $ac(b)^0$

[1] C

[2] C

[2] No, and an appropriate explanation is given or the expression is evaluated correctly.

[1] No, and the correct order of operations is used to evaluate $2(3)^2 + 5$, but one computational error is made.

or [1] One conceptual error is made in evaluating the expression, but the question is answered appropriately.

or [1] Appropriate work is shown, but the question is not answered.

[0] No, but no explanation or an inappropriate explanation is given.

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.

[4] C

[5] C

[6] C

[7] D

[8] B

[9] D

[10] A

[11] C

[12] D