

Simplifying Numerical Expressions (Order of Operations)

Assignment

Answers:

Part A: Given the numerical expressions, examine which solution was done correctly. Justify your answer.

1.

Solution A

$$\begin{aligned} & -7 - 8 + 24 \div (-4)(-3) \\ & -7 - 8 + (-6)(-3) \\ & -7 - 8 + 18 \\ & -15 + 18 \\ & 3 \end{aligned}$$

Solution B

$$\begin{aligned} & -7 - 8 + 24 \div (-4)(-3) \\ & -7 - 8 + 24 \div 12 \\ & -7 - 8 + 2 \\ & -15 + 2 \\ & -13 \end{aligned}$$

Which numerical expression is simplified correctly? Justify your answer.

Answer: Solution A is simplified correctly. The order of operations was followed in the solution.

2.

Solution A

$$\begin{aligned} & -2(5 - 7) \div 2 - (-10) \\ & -2(-2) \div 2 - (-10) \\ & -2(-1) - (-10) \\ & 2 - (-10) \\ & 12 \end{aligned}$$

Solution B

$$\begin{aligned} & -2(5 - 7) \div 2 - (-10) \\ & -2(-2) \div 2 - (-10) \\ & 4 \div 2 - (-10) \\ & 2 - (-10) \\ & 12 \end{aligned}$$

Which numerical expression is simplified correctly? Justify your answer.

Answer: Solution B is simplified correctly. The order of operations was followed in the solution.

Simplifying Numerical Expressions (Order of Operations)

Assignment

3.

Solution A

$$3^3 \div 9(-3) + (-3)^2$$
$$27 \div 9(-3) + 9$$
$$3(-3) + 9$$
$$-9 + 9$$
$$0$$

Solution B

$$3^3 \div 9(-3) + (-3)^2$$
$$27 \div 9(-3) + 9$$
$$27 \div (-27) + 9$$
$$-1 + 9$$
$$8$$

Which numerical expression is simplified correctly? Justify your answer.

Answer: Solution A is simplified correctly. The order of operations was followed in the solution.

4.

Solution A

$$-1[(25 - 7) \div 9]^2 - (64 \div 32)^2$$
$$-1[18 \div 9]^2 - (64 \div 32)^2$$
$$-1[2]^2 - (2)^2$$
$$-1[4] - 4$$
$$-1(0)$$
$$0$$

Solution B

$$-1[(25 - 7) \div 9]^2 - (64 \div 32)^2$$
$$-1[18 \div 9]^2 - (64 \div 32)^2$$
$$-1[2]^2 - (2)^2$$
$$-1[4] - 4$$
$$-4 - 4$$
$$-8$$

Which numerical expression is simplified correctly? Justify your answer.

Answer: Solution B is simplified correctly. The order of operations was followed in the solution.

Simplifying Numerical Expressions (Order of Operations)

Assignment

Part B: Simplify the following numerical expressions.

1. $-100 - 35 \div (-5)$

$$-100 - (-7)$$

$$-100 + 7$$

$$\mathbf{-93}$$

2. $-5 + (8 + 2) \div (-10 \div 2) + 9$

$$-5 + 10 \div (-5) + 9$$

$$-5 + (-2) + 9$$

$$-7 + 9$$

$$\mathbf{2}$$

3. $16 \times 5 \div (12 - 7) - (-10)$

$$16 \times 5 \div 5 - (-10)$$

$$80 \div 5 - (-10)$$

$$16 - (-10)$$

$$\mathbf{26}$$

4. $(45 \div 5) \div 3(12 \div 3) - 12$

$$9 \div 3(4) - 12$$

$$3(4) - 12$$

$$12 - 12$$

$$\mathbf{0}$$

5. $24 \div (-2)^3 + 5(-2)$

$$24 \div (-8) + 5(-2)$$

$$-3 + 5(-2)$$

$$-3 + (-10)$$

$$\mathbf{-13}$$

6. $5(2 + 10 \div 2) - [(25 \div 5) + 2^4 - 5]$

$$5(2 + 5) - [5 + 2^4 - 5]$$

$$5(2 + 5) - [5 + 16 - 5]$$

$$5(7) - [5 + 16 - 5]$$

$$35 - [21 - 5]$$

$$35 - 16$$

$$\mathbf{19}$$

7. $[-2(-16 \div 8) + 5]^2 - 1$

$$[-2(-2) + 5]^2 - 1$$

$$[4 + 5]^2 - 1$$

$$[9]^2 - 1$$

$$81 - 1$$

$$\mathbf{80}$$

8. $3[6 - (-4)(-2)] + (10 \div 5)^2 - 2^4$

$$3[6 - 8] + (2)^2 - 2^4$$

$$3[2] + 4 - 16$$

$$6 + 4 - 16$$

$$10 - 16$$

$$\mathbf{-6}$$

9. $100 \div 10[20 \div (-4)] - 5^2(4^2 \div 8)$

$$100 \div 10[-5] - 5^2(4^2 \div 8)$$

$$100 \div 10[-5] - 25(16 \div 8)$$

$$10[-5] - 25(2)$$

$$-50 - 50$$

$$\mathbf{-100}$$

10. $\{36 + 7[6 - 2(24 \div 12) + 3^2(2)]\} \div 4$

$$\{36 + 7[6 - 2(2) + 3^2(2)]\} \div 4$$

$$\{36 + 7[6 - 4 + 3^2(2)]\} \div 4$$

$$\{36 + 7[6 - 4 + 9(2)]\} \div 4$$

$$\{36 + 7[6 - 4 + 18]\} \div 4$$

$$\{36 + 7[20]\} \div 4$$

$$\{36 + 140\} \div 4$$

$$176 \div 4$$

$$\mathbf{44}$$