

Order of Operations Homework

Directions: Be sure to show all work, communicate your thought process, and justify your reasoning. Remember to check that your answers are complete, correct, and reasonable.

Evaluate each expression.

1. $2(-4 - -2)^2$

2. $(-8)^2 + 14 \div 7$

3. $\left(\frac{-4(2)}{8+8} + 5\right)(3)$

Evaluate each expression given $w = 7$, $x = -6$, $y = 5$, and $z = -1$

4. $z(3x - 4)^2$;

5. $w * -2 + |2x - 3| \div 5$

6. $3[(w - 2)^2 + 2yz]$

7. Identify, explain, and correct the error in the work below.

$$\begin{aligned} 3 + 4 - 24 \div 8 \\ = 7 - 24 \div 8 \\ = -17 \div 8 \\ = -17/8 \end{aligned}$$

8. Identify, explain, and correct the error in the work below.

$$\begin{aligned} (2 - 3)^2 + 56 \div 4 * 2 \\ = (-1)^2 + 56 \div 8 \\ = 1 + 7 \\ = 8 \end{aligned}$$

9. You are budgeting for a five-day vacation! You plan to spend thirty-five dollars on food per day and fifty dollars on entertainment per day. You are bringing a total of \$580 on vacation with you, and want to figure out how much you will have left over for spend money each day. On the calculator, you enter $580 - 35 - 50 / 5$, and obtain a solution of 535. First describe why this answer is unreasonable. Then, explain how you could have applied the order of operations correctly to avoid this error.

10. Student A and Student B both simplified the same expression. Only one student is correct. Whose work is correct, and why?

Student A

$$\begin{aligned} (2x - 8 + 3x)100 \div 5^2 \\ = (5x - 8)4 \\ = 20x - 32 \end{aligned}$$

Student B

$$\begin{aligned} (2x - 8 + 3x)100 \div 5^2 \\ = (5x - 8)20^2 \\ = (5x - 8)400 \\ = 2000x - 3200 \end{aligned}$$



Looking Ahead:

11. Solve each equation or inequality, and graph the solution on a number line.

a. $2(2x - 4) + 3 = 3x - 1$

b. $25 \leq -5(n - 3)$

c. $3j \geq -4 + j > 2(2j - 8)$

d. $3 < -2b + 1 \leq 16 + b$

Selected Solutions

1. 8

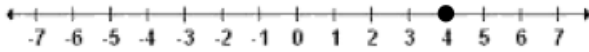
3. 13.5

5. -11

7. (explanations will vary) the division should have been operated before the addition & subtraction; correction: $3 + 4 - 24 / 8 = 3 + 4 - 3 = 7 - 3 = 4$

9. The answer is unreasonable because you started with \$580 and are spending at least \$85 per day. If you had \$535 for spend money per day for five days, you would have had to start with over \$2675($\$535 \cdot 5$). You should have grouped the $(580 - 35 - 50)$ and then divided that amount by five days to avoid this error.

11. a. $x = 4$



c. $-2 \leq j < 7$

