Answers:

1. Tom and Jenny were asked to simplify the same numerical expressions on the board:

$$8\left(4+5\right)÷12-\left(-6\right)$$

Examine their solutions and answer the questions that follow.

**Tom’s Solution**

$$8\left(4+5\right)÷12-(-6)$$

$$8\left(9\right)÷12-(-6)$$

$$72÷12-(-6)$$

$$6-(-6)$$

$$12$$

**Jenny’s Solution**

$$8\left(4+5\right)÷12-(-6)$$

$$8\left(9\right)÷12-(-6)$$

$$72÷12-(-6)$$

$$72÷18$$

$$4$$

1. Compare how Tom and Jenny simplified the expressions by writing the order of the operations used, as shown in each of their solutions.

**Tom’s Solution**

**ORDER OF OPERATIONS**

**Addition (inside the parentheses)**

**Multiplication**

**Division**

**Subtraction**

**Jenny’s Solution**

**ORDER OF OPERATIONS**

**Addition (inside the parentheses)**

**Multiplication**

**Subtraction**

**Division**

1. Who do you think gave the correct solution? Justify your answer.

**Answer:** Tom gave the correct solution because he followed the correct order of operations.

2. Simplify the following numerical expressions.

 a. $(5-10)^{2}[3^{2}\left(12÷3\right)-(4^{2})]$

$$(-5)^{2}[3^{2}\left(12÷3\right)-(4^{2})]$$

$$25[9\left(12÷3\right)-16]$$

$$25[9\left(4\right)-16]$$

$$25[36-16]$$

$$25[20]$$

$$500$$

 b. $-2\left[16÷\left(-2\right)^{2}\right]-2[\left(-64÷16\right)+5]^{2}$

$$-2\left[16÷4\right]-2[\left(-64÷16\right)+5]^{2}$$

$$-2\left[4\right]-2[\left(-64÷16\right)+5]^{2}$$

$$2\left[4\right]-2[\left(-4\right)+5]^{2}$$

$$2\left[4\right]-2[1]^{2}$$

$$8-2[1]$$

$$8-2$$

$$6$$