G5-M4-Lesson 10

Evaluate means *solve*, so I need to find the value of the unknown.

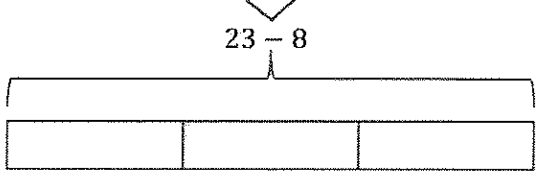
1. Write expressions to match the diagrams. Then, evaluate.

a.

I also could have written $(23 - 8) \times \frac{1}{3}$. Both expressions are correct.

$$\frac{1}{3} \times (23 - 8)$$
$$= \frac{1}{3} \times 15$$
$$= \frac{15}{3}$$
$$= 5$$

$23 - 8$, or 15, is the whole.

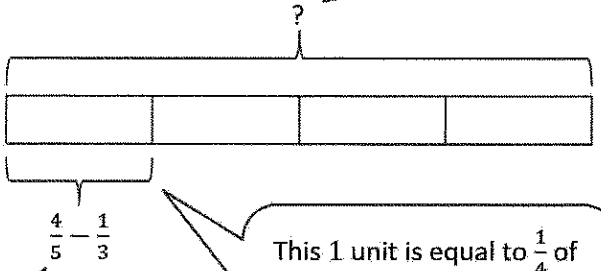


The question mark shows that I'm trying to find 1 third of the whole.

b.

The question mark tells me I need to find the value of the whole.

$$4 \times \left(\frac{4}{5} - \frac{1}{3}\right)$$
$$= 4 \times \left(\frac{12}{15} - \frac{5}{15}\right)$$
$$= 4 \times \frac{7}{15}$$
$$= \frac{28}{15}$$
$$= 1\frac{13}{15}$$



In order to subtract, I need to make like units.

I have to find the difference before I multiply by 4.

This 1 unit is equal to $\frac{1}{4}$ of the whole. If I multiply it by 4, I can find the value of the whole.

2. Circle the expression(s) that give the same product as $4 \times \frac{2}{5}$. Explain how you know.

a. $5 \div (2 \times 4)$

This expression is equal to $5 \div 8$, not $8 \div 5$.

b. $2 \div 5 \times 4$

$2 \div 5$ is equal to $\frac{2}{5}$. $\frac{2}{5} \times 4 = 4 \times \frac{2}{5}$

c. $4 \times 2 \div 5$

This expression is equal to $8 \div 5$, which is $\frac{8}{5}$ or $1\frac{3}{5}$.

I can determine which expressions are equivalent to $4 \times \frac{2}{5}$ without evaluating. However, to check my thinking, I can solve. $4 \times \frac{2}{5} = \frac{4 \times 2}{5} = \frac{8}{5} = 1\frac{3}{5}$

d. $4 \times \frac{5}{2}$

This expression does have 4 as one of the factors, but $\frac{5}{2}$ is not equivalent to $\frac{2}{5}$.

3. Write an expression to match, and then evaluate.

a. $\frac{1}{3}$ the sum of 12 and 21

The word *sum* tells me that 12 and 21 are being added.

In order to find $\frac{1}{3}$ of the sum, I can multiply by $\frac{1}{3}$ or divide by 3.

$$\frac{1}{3} \times (12 + 21)$$
$$= \frac{1}{3} \times 33$$
$$= \frac{33}{3}$$
$$= 11$$

b. Subtract 5 from $\frac{1}{7}$ of 49.

I need to be careful with subtraction! Even though the beginning of the expression says to subtract 5, I need to find $\frac{1}{7}$ of 49 first.

$$\frac{1}{7} \times 49 - 5$$
$$= \frac{49}{7} - 5$$
$$= 7 - 5$$
$$= 2$$

4. Use $<, >$, or $=$ to make true number sentences without calculating. Explain your thinking.

a. $(17 \times 41) + \frac{5}{4}$ $<$ $\frac{7}{4} + (17 \times 41)$

Since both expressions show (17×41), I only have to compare the parts being added to this product.

$\frac{5}{4} < \frac{7}{4}$. Therefore, the expression on the left is less than the expression on the right.

In both expressions, one of the factors is $\frac{3}{4}$. I only have to compare the other factors.

I know that $15 + 18 = 33$ and $3 \times 11 = 33$. The second factors are equivalent too.

b. $\frac{3}{4} \times (15 + 18)$ $=$ $(3 \times 11) \times \frac{3}{4}$

Since both factors are equivalent, these expressions are equal.