

To earn full credit for this worksheet, you must follow the MTH 60 Documentation guidelines and do your work in pencil. No late work accepted.

Keep in mind that your homework is part of your "grade application," just as a cover letter and resume are part of a job application. Impressions count. Neatness and completeness make a lasting impression on the instructor (so does turning your homework in on time).

1. Simplify $2 + 7(3 - 4(1 - 2))$. Remember to start with the original expression to the left of the first equal sign and one simplification on the right, then line up your equal signs. Show ALL of your work.

$$\begin{aligned}2 + 7(3 - 4(1 - 2)) &= 2 + 7(3 - 4(-1)) \\ &= 2 + 7(3 + 4) \\ &= 2 + 7(7) \\ &= 2 + 49 \\ &= 51\end{aligned}$$

2. Simplify $3a + 5b - 7a + 6b$. Remember to start with the original expression on the left of the = sign and one simplification on the right, then line up the = signs as you show simplification on the right hand side if you have more than one step.

$$\begin{aligned}3a + 5b - 7a + 6b &= 3a - 7a + 5b + 6b \\ &= -4a + 11b\end{aligned}$$

3. Solve $3 - r = 5$. Show all of your work. **Check your result** (yes, this means you need to show the check). Write your answer in a complete sentence. (Check the documentation guidelines for an example).

$$3 - r = 5$$

$$3 - r + r = 5 + r$$

$$3 = 5 + r$$

$$3 - 5 = 5 + r - 5$$

$$-2 = r$$

Check: If $r = -2$, then

$$3 - r = 3 - (-2)$$

$$= 3 + 2$$

$$= 5 \quad \checkmark$$

The solution is -2 .

4. Solve $\frac{2}{7}t = \frac{5}{3}$. Show all of your work. **Check your result**. Write your answer in a complete sentence.

$$\frac{2}{7}t = \frac{5}{3}$$

$$\frac{7}{2} \cdot \frac{2}{7}t = \frac{7}{2} \cdot \frac{5}{3}$$

$$t = \frac{35}{6}$$

Check: If $t = \frac{35}{6}$, then

$$\frac{2}{7}t = \frac{2}{7} \cdot \frac{35}{6}$$

$$= \frac{2 \cdot 35}{7 \cdot 6}$$

$$= \frac{2 \cdot 7 \cdot 5}{7 \cdot 2 \cdot 3}$$

$$= \frac{5}{3}$$

The solution is $\frac{35}{6}$.

5. Solve $7x - 8(x+1) = 4(x+3) - 3x$. Show all of your work. **Check your result.** Write your answer in a complete sentence.

$$7x - 8(x+1) = 4(x+3) - 3x$$

$$7x - 8x - 8 = 4x + 12 - 3x$$

$$-x - 8 = x + 12$$

$$-x - 8 + x = x + 12 + x$$

$$-8 = 2x + 12$$

$$-8 - 12 = 2x + 12 - 12$$

$$-20 = 2x$$

$$\frac{-20}{2} = \frac{2x}{2}$$

$$-10 = x$$

Check: If $x = -10$

$$\text{then } 7x - 8(x+1) = 7(-10) - 8(-10+1)$$

$$= -70 - 8(-9)$$

$$= -70 + 72$$

$$= 2$$

$$\text{and } 4(x+3) - 3x = 4(-10+3) - 3(-10)$$

$$= 4(-7) + 30$$

$$= -28 + 30$$

$$= 2$$

The solution is -10 .