Lesson 6.2.6 Homework

6-122. Simplify and solve each equation below for x. Show your work and record your final answer.

a. $24 + 2x = 3x + 2(3 \cdot 4)$

b. $24 + 3x = 3x + 3(7 - 1)$

c. $2(12 + x) = 2x + 24$

6-123. Show the "check" for each of these problems and write whether the solution is correct or incorrect.

a. For $3x + 2 = x - 2$, does $x = 0$?

b. For $3(x - 2) = 30 + x - 2 - x + 2$, does $x = 12$?

6-124. Some steps in solving an equation are more efficient than others. Complete parts (a) through (d) to determine the most efficient first step to solve the equation $34 = 5x - 21$.

a. If both sides of the equation were divided by 5, then the equation would be $\frac{34}{5} = x - \frac{21}{5}$. Does this make the problem simpler? Why or why not?
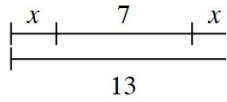
b. If you subtract 34 from both sides, the equation becomes $0 = 5x - 55$. Does this make the equation simpler to solve? Why or why not?

c. If you add 21 to both sides, the equation become $55 = 5x$. Does this suggestion make this a problem you can solve more easily? Why or why not?
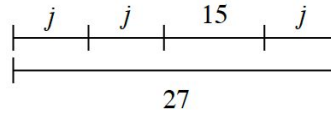
d. All three suggestions are legal moves, but which method will lead to the most efficient solution? Why?

6-127. Each of the diagrams below represents a sequence for an acrobat on a tightrope. Each letter represents the unknown length of a trick. For each part below, write and solve an equation to figure out how far the acrobat travels during each trick (that is, the length represented by each letter). Show how you know your answer is correct.

a. Find x.

b. Find j.

c. Find n.