Date: _____

8.2 Solving Equations: $ax + b = c, \frac{x}{a} + b = c$

***MathLinks 9,* pages 304–313**

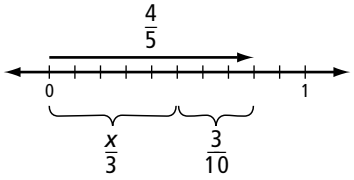
Key Ideas Review

For #1 to 4, unscramble the letters to form a word that correctly completes the statement.

1. A _____ (EDLMO) can help determine or check some solutions.
2. The reverse order of operations can isolate the variable in a two-step equation:
   - First, add or _____ (ABCRSTTU).
   - Then, _____ (ILLMPTUY) or divide.
3. To solve a two-step equation with fractions, you can first multiply all terms by a common multiple of the _____ (ADEIMNNOORST) to convert the fractions to integers.
4. You can check the _____ (ILNOOSTU) by
   - using _____ (BIINOSSTTTUU)
   - modelling
   - verifying it is consistent with the _____ (ACFTS) given

Check Your Understanding

5. Write an equation that could be modelled by this diagram. Then, solve.



6. Model the equation $4x + 0.24 = 0.72$ using concrete materials. Sketch your model. Then, solve.

Date: _____

7. Jasmine solved the equation $2.5x - 0.62 = 1.2$ as shown. Do you agree with her solution? Explain.

$$\begin{aligned} 25x - 62 &= 120 \\ 25x - 62 + 62 &= 120 + 62 \\ 25x &= 182 \\ \frac{25x}{25} &= \frac{182}{25} \\ x &= 7.28 \end{aligned}$$

8. Solve.

a) $5x - \frac{3}{2} = \frac{5}{4}$

b) $\frac{x}{3} + \frac{7}{6} = \frac{2}{3}$

c) $1\frac{1}{4} = -2\frac{3}{8} + \frac{3}{5}g$

d) $4 - \frac{2}{3}q = \frac{3}{5}$

9. Solve and check.

a) $0.3x - 1.7 = 0.88$

b) $-1.56 = 3.7f + 5.1$

c) $\frac{b}{-3} + 4.6 = -8.3$

10. A pool contains 300 L of water. It empties at a rate of 6.4 L/min. Write an equation to determine how long it will be until the pool contains only 60 L of water. Then, solve.

11. The area of Banff National Park is 6641.0 km^2. This is 529.6 km^2 less than 5.1 times the area of Kootenay National Park. Write and solve an equation to determine the area of Kootenay National Park.

12. An isosceles triangle with a perimeter of 47.4 cm has one short side and two equal longer sides. The short side is 8.6 cm. Write and solve an equation to determine the length of one longer side.

13. Jasmine has a newspaper delivery job. She earns $5.70 plus $0.09 per paper she delivers. How many papers does she need to deliver to earn a total of $12?