1.2 Extension: Algebra with fractional coefficients

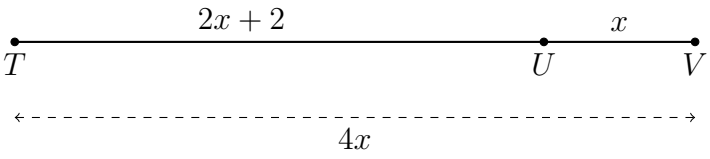
A check is required for all algebra solutions

1. Solve each equation for x.

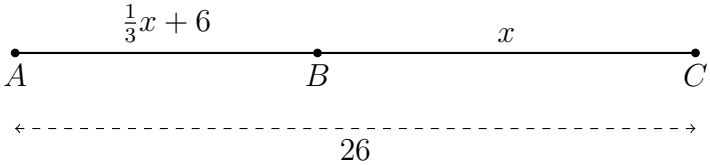
   (a) $\frac{1}{2}x = 8$

   (b) $\frac{1}{2}(x + 5) = 8$

2. As shown, three collinear points with $TU = 2x + 2$, $UV = x$, $TV = 4x$. Find TV.

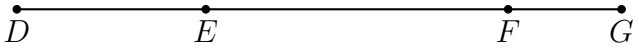


3. As shown, three collinear points with $AB = \frac{1}{3}x + 6$, $BC = x$, $AC = 26$. Find x.



4. Given $\overline{DEFG}$, $DE = 3\frac{1}{2}$, $EF = 7\frac{1}{2}$, and $FG = 2\frac{1}{2}$.

   Find DG, expressed as a fraction, not a decimal. *diagram not to scale*



5. Find the value of each expression. (learn more by *not* using a calculator)

   (a) $|2 - 13| =$

   (b) $|10 + (-3)| =$

   (c) $|4 - (-2)| =$

   (d) $|-5 - (-7)| =$

6. Circle true or false for each statement.

T **F** There are two solutions for the equation $|x| = 9$, $x = 9$ and $x = -9$.

T **F** If x is negative, then $|x|$ must be positive.

T **F** If x is positive, then $|-x|$ is negative.

T **F** The value of $|x| + |3|$ is always positive.

7. Rewrite the equation $|x + 4| = 7$ two ways (positive and negative 7). Then solve both equations to find all values of x that satisfy $|x + 4| = 7$. (show the check for each solution)

   (a) positive

   (b) negative