Try It 1-3

Ex. 1:
1. \(-3x = 2x + 20\)
   \[-2x + \_\]  
   \[-5x + 20\]  
   \[\_5\]  
   \[x = -4\]

2. \(2.5y + 6 = 4.5y - 1\)
   \[-2.5y\]  
   \[6\]  
   \[1\]  
   \[\frac{7}{2}\]  
   \[\frac{7}{2} = y\]

Ex. 2:
3. \(6(4 - z) = 2z\)
   \[24 - 6z = 2z\]  
   \[+6z\]  
   \[24 = 8z\]  
   \[\frac{8}{3} = 3\]

4. \(5(w - 2) = -2(1.5w + 5)\)
   \[5w - 10 = -3w - 10\]  
   \[+3w\]  
   \[8w = -10\]  
   \[\frac{8w}{8} = -10\]  
   \[w = 0\]

Ex. 3:
5. \(2x + 1 = 2x - 1\)  
   \[-2x\]  
   \[\_\]  
   \[\_\]  
   \[\frac{1}{-1}\]  
   \[\text{same x's but different constants = no solution}\]

6. \(6(5 - 2v) = -4(3v + 1)\)
   \[30 - 12v = -12v - 4\]  
   \[+12v\]  
   \[30 = -4\]  
   \[\text{no solution}\]
Ex. 4:

7. \( \frac{1}{2}(6t-4) + 3t - 2 = \frac{3}{2}x - 2 \)
   
   \(-\frac{8}{2} - 2 = -\frac{3}{2}x - 2 \)
   
   \(-2 \neq -2 \)

   \boxed{\text{infinite solution}}

* any number will work as an answer

8. \( \frac{1}{3}(2b + 9) + \frac{2}{3}(b + \frac{5}{2}) \)
   
   \( \frac{2}{3}b + 3 = \frac{2}{3}b + 3 \)
   
   \(3 = 3 \)

   \boxed{\text{infinite solution}}

Ex. 5:

9. The diameter of the purple circle is 3x. What is the area of each circle?

   \( r = x + 2 = 4 + 2 = 6 \)
   
   \( A = \pi r^2 \)
   
   \( A = \pi (6)^2 = 36\pi \)
   
   \( \frac{d}{2} = r \)
   
   \( \frac{3x}{2} = r \)
   
   \( 1.5x = r \)

Ex. 6:

10. A boat travels 3 hours downstream at \( r \) miles per hour (mph). On the return trip, the boat travels 5 miles per hour slower and takes 4 hours. What is the distance the boat travels each way?

   \( d = \text{distance} \)

   * distance going is the same as returning

   \( d_{\text{going}} = d_{\text{returning}} \)

   \( r_g \cdot t_g = r_r \cdot t_r \)

   \( r \cdot 3 = (r-5) \cdot 4 \)

   \( 3r = 4r - 20 \)

   \( -3r = 20 \)

   \( 0 = r \cdot -20 \)

   \( 2 + 20 = 0 \)

   \( r = 5 \text{ mph} \)

   \( 20 = r \text{ mph} \)

   \( 20 \text{ mph} \cdot 3 \text{ h} = 60 \text{ mi} \)

   \( 15 \text{ mph} \cdot 4 \text{ h} = 60 \text{ mi} \)