In the following, \( y \) varies directly as \( x \). Find the constant of variation \( k \) and write the equation that relates the two variables.

1. \( y = 15 \) when \( x = 5 \) 
2. \( y = -12 \) when \( x = 6 \)

3. \( y = \frac{2}{3} \) when \( x = \frac{1}{2} \) 
4. \( y = 1.5 \) when \( x = 30 \)

Graph the following direct variation equations.

5. \( y = 2x \) 
6. \( y = -\frac{1}{3}x \)

For question 7-10, assume that \( a \) varies directly as \( b \).

7. If \( a = 8 \) when \( b = 4 \), find \( a \) when \( b = 3 \).

8. If \( a = -3 \) when \( b = 12 \), find \( a \) when \( b = 32 \).
9. If $a = 2$ when $b = 5$, find $b$ when $a = 7$.

10. If $a = -4$ when $b = \frac{1}{3}$, find $b$ when $a = 9$.

Solve each proportion for the given variable.

11. \[ \frac{5}{6} = \frac{x}{24} \]
12. \[ \frac{-1}{5} = \frac{x}{15} \]
13. \[ \frac{9}{10} = \frac{3}{b} \]
14. \[ \frac{-5}{b} = \frac{3}{-8} \]
15. \[ \frac{2}{5} = \frac{x + 1}{30} \]
16. \[ \frac{21}{7} = \frac{x - 4}{2} \]
17. \[ \frac{31.5}{b + 10} = \frac{7}{2} \]
18. \[ \frac{3}{10} = x + 2 \]