1. Direct variation ($k = 3$) 2. Neither

3. Inverse variation ($k = 5$)

4. $x =$ time, $y =$ distance
   Plug $x = 5$ and $y = 700$ into $y = kx$.
   $1700 = 5k; k = 340$
   The equation is $y = 340x$.

   When $x = 12$, $y = 4080$.
   It will travel 4,080 meters.

5. $x =$ number of people, $y =$ time taken
   Plug $x = 4$ and $y = 3$ into $y = k/x$.
   $3 = k/4 ; k = 12$
   The equation is $y = 12/x$.

   When $x = 6$, $y = 2$.
   It will take 2 hours.

6. Inverse variation 7. Neither

8. Inverse variation 9. Direct variation
   $xy = 1/5$ $y = (1/3)x$

10. Use $y = kx$, $x = 3$, and $y = 15$ to find $k = 5$.
    The equation is $y = 5x$.
    When $y = 30$, $x = 6$.

11. Use $y = k/x$, $x = -5$, and $y = 4$ to find $k = -20$.
    The equation is $y = -20/x$.
    When $x = 2$, $y = -10$.

12. $x =$ travel time, $y =$ distance
    Use $y = kx$, $x = 3/4$, and $y = 72$ to find $k = 96$.
    The equation is $y = 96x$.

    When $x = 4$, $y = 384$.
    The car will travel 384 miles.

13. $x =$ shadow length, $y =$ object height
    Use $y = kx$, $x = 18$, and $y = 12$ to find $k = 2/3$.
    The equation is $y = (2/3)x$.

    When $y = 16$, $x = 24$.
    The shadow is 24 feet long.

14. $x =$ rate of pumping, $y =$ time to empty the tank
    Use $y = k/x$, $x = 12$, and $y = 36$ to find $k = 432$.
    The equation is $y = 432/x$.

    When $x = 16$, $y = 27$.
    It will take 27 minutes.

15. $x =$ resistance, $y =$ current
    Use $y = k/x$, $x = 4$, and $y = 9$ to find $k = 36$.
    The equation is $y = 36/x$.

    When $x = 12$, $y = 3$.
    It will be 3 amperes.

16. $x =$ weight on Mars, $y =$ weight on Earth
    Use $y = kx$, $x = 19$, and $y = 50$ to find $k = 50/19$.
    The equation is $y = (50/19)x$.

    When $y = 80$, $x = 30.4$.
    It will weigh 30.4 pounds.