Activity Sheet
Equations of Parallel and Perpendicular Lines through a Point

1. The equation for line c can be written as
   \[ y = \frac{1}{2}x + 6 \]
   Line d which is parallel to line c includes the point (-6, -4). What is the equation of line d?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

2. The equation of line s is
   \[ y = \frac{4}{3}x + 2. \]
   Perpendicular to line s is line t, which passes through the point (8, -2). What is the equation of line t?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

3. The equation of line f is
   \[ y = -3x + 10. \]
   Line g is parallel to line f and passes through (-3, 5). What is the equation of line g?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

4. The equation for line c can be written as
   \[ y = \frac{1}{3}x - 7 \]
   Line d includes the point (-1, -4) and is perpendicular to line c. What is the equation of line d?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

5. The equation of line j is
   \[ y = -5x + 10 \]
   Parallel to line j is line k which passes through the point (2, -4). What is the equation of line k?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

6. Line p has an equation of
   \[ y = \frac{5}{8}x + 2 \]
   Line q which is perpendicular to line p, includes the point (-1, -1). What is the equation of line q?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

7. Line g has an equation of
   \[ y - 7 = \frac{3}{10}(x - 9) \]
   Parallel to line g is line h, which passes through the point (10, 7). What is the equation of line h?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.
8. Line $r$ has an equation of
   \[ y + 1 = -4(x - 5) \]
   Line $s$ is perpendicular to line $r$ and passes through (-10, -3). What is the equation of line $s$?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

9. The equation of line $g$ is
   \[ y = \frac{1}{2}x + 9 \]
   Parallel to line $g$ is line $h$, which passes through the point (1, 3). What is the equation of line $h$?
   Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

10. Line $t$ has an equation of
    \[ y = -2x - 5 \]
    Perpendicular to line $t$ is line $u$, which passes through the point (10, -4). What is the equation of line $u$?
    Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

11. Line $q$ has an equation of
    \[ y = -2x + 5 \]
    Parallel to line $q$ is line $r$, which passes through the point (-8, -8). What is the equation of line $r$?
    Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

12. The equation for line $s$ can be written as
    \[ y = \frac{1}{3}x - 1 \]
    Line $t$, which is perpendicular to line $s$, includes the point (-3, 9). What is the equation of line $t$?
    Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

13. The equation of line $p$ is
    \[ y + 6 = \frac{6}{5}(x + 5) \]
    Line $q$, which is parallel to line $p$, includes the point (-1, 2). What is the equation of line $q$?
    Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

14. The equation for line $k$ can be written as
    \[ y + 8 = \frac{1}{7}(x - 1) \]
    Parallel to line $k$ is line $l$, which passes through the point (-4, -2). What is the equation of line $l$?
    Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.

15. Line $j$ has an equation of
    \[ 6x + 2y = 9 \]
    Line $k$ includes the point (-1, 8) and is parallel to line $j$. What is the equation of line $k$?
    Write the equation in slope-intercept form. Write the numbers in the equation as proper fractions, improper fractions, or integers.