### Slope-Intercept Form Homework

1. Identify the slope, x-intercept, and y-intercept for each of the following equations. Then graph and label them on the provided coordinate plane.

<table>
<thead>
<tr>
<th>Equation</th>
<th>Slope</th>
<th>x-intercept</th>
<th>y-intercept b</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) $y = -4x - 1$</td>
<td>$-4$</td>
<td>$-\frac{1}{4}$</td>
<td>$-1$</td>
</tr>
<tr>
<td>(B) $y = \frac{3}{5}x - 2$</td>
<td>$\frac{3}{5}$</td>
<td>$\frac{10}{3}$</td>
<td>$-2$</td>
</tr>
<tr>
<td>(C) $y = 4x + 5$</td>
<td>$4$</td>
<td>$-\frac{5}{4}$</td>
<td>$5$</td>
</tr>
<tr>
<td>(D) $y = 0.5x - 4$</td>
<td>$0.5$</td>
<td>$8$</td>
<td>$-4$</td>
</tr>
</tbody>
</table>
2. Write an equation in slope-intercept form for the line that contains the following points.

(A) (0,6) and (5,0)
\[ m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - 6}{5 - 0} = -\frac{6}{5} \]
\[ y = -\frac{6}{5}x + b \]
\[ 6 = -\frac{6}{5} \cdot 0 + b \]
\[ b = 6 \]
\[ y = -\frac{6}{5}x + 6 \]

(B) (3,4) and (-1,-2)
\[ m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 + 2}{3 + 1} = \frac{6}{4} = \frac{3}{2} \]
\[ y = \frac{3}{2}x + b \]
\[ -2 = \frac{3}{2} \cdot (-1) + b \]
\[ b = -\frac{1}{2} \]
\[ y = \frac{3}{2}x - \frac{1}{2} \]

(C) (7,-7) and (-4,-3)
\[ m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-7 + 3}{7 + 4} = -\frac{4}{11} \]
\[ y = -\frac{4}{11}x + b \]
\[ -3 = -\frac{4}{11} \cdot (-4) + b \]
\[ -3 = \frac{16}{11} + b \]
\[ b = -\frac{49}{11} \]
\[ y = -\frac{4}{11}x - \frac{49}{11} \]

(D) (6,6) and (-2,-2)
\[ m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 + 2}{6 + 2} = \frac{8}{8} = 1 \]
\[ y = x + b \]
\[ -2 = 1 \cdot (-2) + b \]
\[ -2 = -2 + b \]
\[ b = 0 \]
\[ y = x \]

3. Write an equation in slope-intercept form for the line that fits each description below.

(A) contains the origin and has a slope of -2
\[ y = -2x \]

(B) crosses the y-axis at -1 and has a slope of 5
\[ y = 5x - 1 \]

(C) contains (-3,2) and (6,6)
\[ m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 2}{6 + 3} = \frac{4}{9} \]
\[ y = \frac{4}{9}x + b \]
\[ 2 = \frac{4}{9} \cdot (-3) + b \]
\[ b = \frac{10}{3} \]
\[ y = \frac{4}{9}x + \frac{10}{3} \]

(D) contains the point (3,-5) and is parallel to the line \( y = 3x - 4 \)
\[ m = 3 \]
\[ y = 3x + b \]
\[ -5 = 3 \cdot (3) + b \]
\[ b = -14 \]
\[ y = 3x - 14 \]
(E) contains the point (-1,4) and is parallel to the line \(2y = 4x + 10\)

\[
\begin{align*}
y &= 2x + 5 \\
m &= 2 \\
y &= 2x + b \\
4 &= 2 \times (-1) + b \\
b &= 6 \\
y &= 2x + 6
\end{align*}
\]

(F) contains the point (2,7) and is perpendicular to the line \(y = 3x - 4\)

\[
\begin{align*}
m &= -\frac{1}{3} \\
y &= -\frac{1}{3}x + b \\
7 &= -\frac{1}{3} \times (2) + b \\
b &= \frac{23}{3} \\
y &= -\frac{1}{3}x + \frac{23}{3}
\end{align*}
\]