Review Exercise Set 25

Exercise 1: Find the x and y intercepts for $2x + y = -6$ and graph the line.

Exercise 2: Find the slope of the line passing through the points (-4, 5) and (6, 9).

Exercise 3: Find the slope of the line passing through the points (-3, -5) and (4, 6). Graph the line.
Exercise 4: The graph below shows the cost, in dollars, for making a long-distance phone call. Find the slope of the line.

Exercise 5: Graph the equation "2x - 4y = 12" by using the slope and y-intercept.
Review Exercise Set 25 Answer Key

Exercise 1: Find the x and y intercepts for $2x + y = -6$ and graph the line.

Find the intercepts

For x-intercept let $y = 0$ and solve for $x$

\[
\begin{align*}
2x + y &= -6 \\
2x + 0 &= -6 \\
2x &= -6 \\
x &= -3
\end{align*}
\]

x-intercept is at (-3, 0)

For y-intercept let $x = 0$ and solve for $y$

\[
\begin{align*}
2x + y &= -6 \\
2(0) + y &= -6 \\
y &= -6
\end{align*}
\]

y-intercept is at (0, -6)

Now, plot the intercepts and draw the line through the points
Exercise 2: Find the slope of the line passing through the points (-4, 5) and (6, 9).

The equation for the slope of a line is the difference between the y-values divided by the difference between the x-values. The variable m is used to represent the slope of a line.

\[ m = \frac{y_2 - y_1}{x_2 - x_1} \]
\[ m = \frac{9 - 5}{6 - (-4)} \]
\[ m = \frac{4}{10} \]
\[ m = \frac{2}{5} \]

The slope is \( \frac{2}{5} \).

Exercise 3: Find the slope of the line passing through the points (-3, -5) and (4, 6). Graph the line.

First, find the slope.

\[ m = \frac{y_2 - y_1}{x_2 - x_1} \]
\[ m = \frac{6 - (-5)}{4 - (-3)} \]
\[ m = \frac{11}{7} \]

The slope is \( \frac{11}{7} \).
Exercise 3 (Continued):

Now, graph the line by plotting the given points.

Exercise 4: The graph below shows the cost, in dollars, for making a long-distance phone call. Find the slope of the line.
Exercise 4 (Continued):

Substitute the two points (2, 1.34) and (5, 3.35) into the slope equation.

\[
m = \frac{y_2 - y_1}{x_2 - x_1}
\]

\[
m = \frac{3.35 - 1.34}{5 - 2}
\]

\[
m = \frac{2.01}{3}
\]

\[
m = 0.67
\]

The slope of the line is 0.67, which means it costs 67 cents per minute for a long-distance call.

Exercise 5: Graph the equation "2x - 4y = 12" by using the slope and y-intercept.

First, we will find the intercepts

Let x = 0 and solve for y  
Let y = 0 and solve for x

\[
2x - 4y = 12
\]

\[
2(0) - 4y = 12
\]

\[
0 - 4y = 12
\]

\[
-4y = 12
\]

\[
y = -3
\]

\[
2x - 4y = 12
\]

\[
2x - 4(0) = 12
\]

\[
2x - 0 = 12
\]

\[
-4y = 12
\]

\[
y = -3
\]

\[
2x = 12
\]

\[
x = 6
\]

y-intercept is at (0, -3)  
x-intercept is at (6, 0)

Now, we can find the slope using our two intercepts.

\[
m = \frac{y_2 - y_1}{x_2 - x_1}
\]

\[
m = \frac{0 - (-3)}{6 - 0}
\]

\[
m = \frac{0 + 3}{6}
\]

\[
m = \frac{3}{6}
\]

\[
m = \frac{1}{2}
\]

The slope is 1/2
Exercise 5 (Continued):

Now, graph the line by plotting the y-intercept and using the slope to find other points along the line. The numerator of the slope is called the "rise" and the denominator is the "run". So with a slope of 1/2 you would rise (move up since 1 is positive) one unit and then run (move to the right since 2 is positive) two units from the previous point to reach a new point on the line.