

3.9

Graphing the Line through a Given Point with a Given Slope

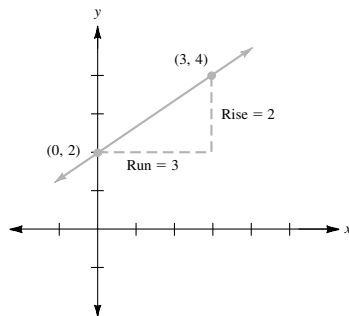
• Example 1

Graph the line with slope $\frac{2}{3}$ and y -intercept 2.

Since the y -intercept is 2, the line passes through the point $(0, 2)$. Since the slope is $\frac{2}{3}$, we move 2 units up each time we move 3 units to the right.

Thus the point $(0 + 3, 2 + 2) = (3, 4)$ is on the line. We now draw the line through $(0, 2)$ and $(3, 4)$.

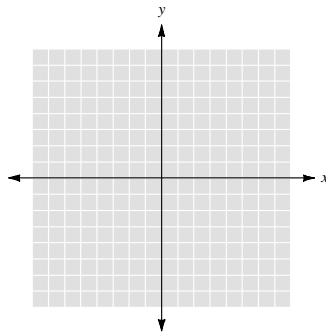
The line rises from left to right because the slope is positive.



The equation of this line is $y = \frac{2}{3}x + 2$.

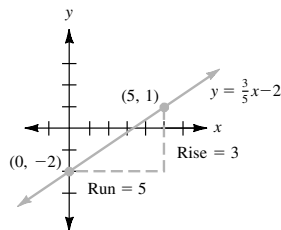
• • • CHECK YOURSELF 1

Graph the equation of a line with slope $\frac{3}{5}$ and y -intercept -2 .



• • • CHECK YOURSELF ANSWER

1.



3.9 Exercises

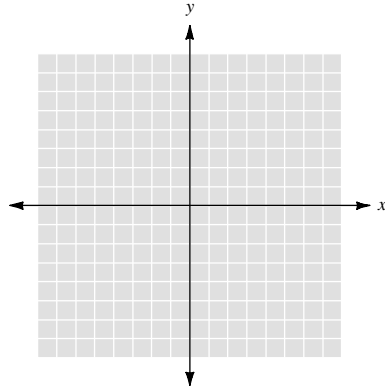
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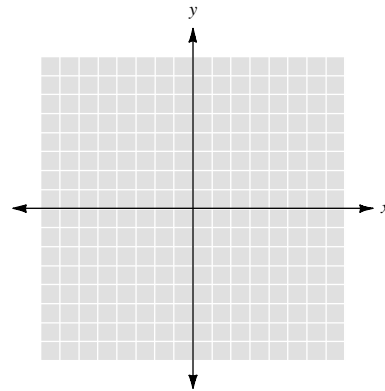
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Graph the line with slope m and passing through the given point.

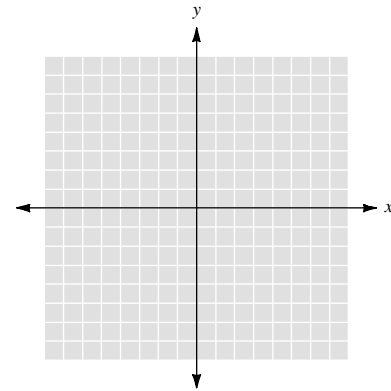
1. $m = 4$, passes through $(1, 7)$



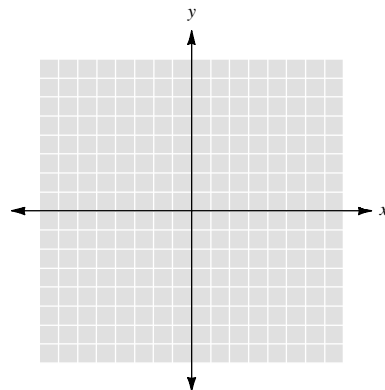
2. $m = -2$, passes through $(-2, -3)$



3. $m = -1$, passes through $(8, 12)$



4. $m = 0$, passes through $(0, 12)$



5. $m = 3$, passes through $(-4, -6)$

