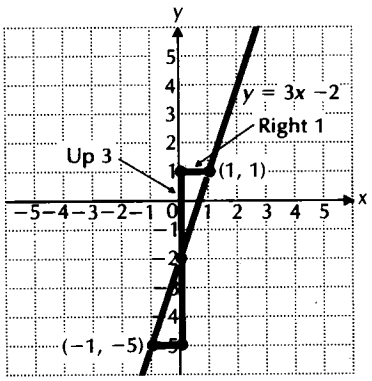
Example 5 Graph $y = 3x - 2$.

a) The slope is 3. The y-intercept is $(0, -2)$.

b) Plot the y-intercept.

c) The slope is 3, or $\frac{3}{1}$. It tells us that from the y-intercept the line slants *up* 3 units for every 1 unit to the *right*.

Then in this direction from the y-intercept $(0, -2)$ we get the point $(1, 1)$. Now we move to the *left* from the y-intercept. For every 3 units we move *down*, we move 1 unit to the *left*. This gives us the point $(-1, -5)$. We then join these three points with a line to complete the graph.



DO EXERCISES 7 AND 8 ON THE PRECEDING PAGE.

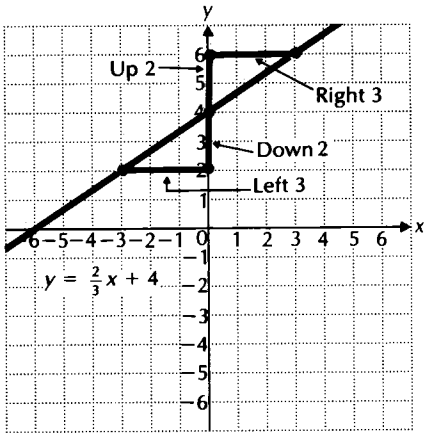
Example 6 Graph $y = \frac{2}{3}x + 4$.

a) The slope is $\frac{2}{3}$. The y-intercept is $(0, 4)$.

b) Plot the y-intercept.

c) The slope is $\frac{2}{3}$. It tells us that from the y-intercept the line slants *up* 2 units for every 3 units to the *right*.

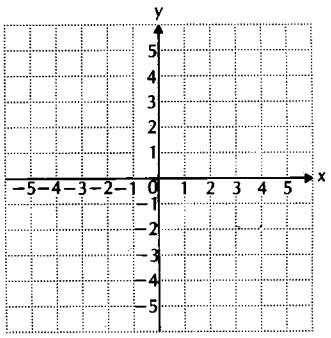
Then in this direction from the y-intercept $(0, 4)$ we get the point $(3, 6)$. Now we move to the left from the y-intercept. For every 2 units we move down, we move 3 units to the left. This gives us the point $(-3, 2)$. We then join these points with a line to complete the graph.



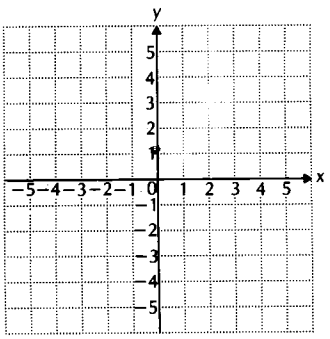
DO EXERCISES 9 AND 10.

Graph.

9. $y = \frac{3}{4}x - 2$



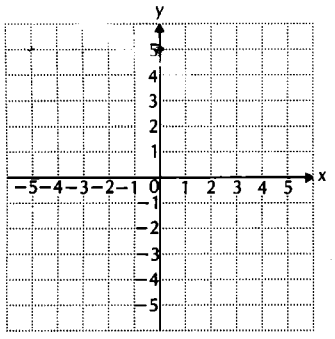
10. $y = \frac{3}{2}x + 1$



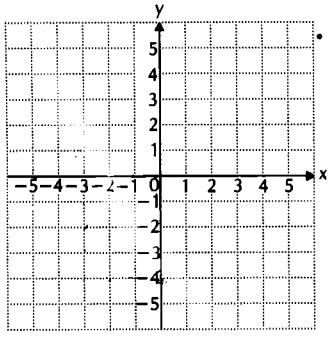
ANSWERS ON PAGE A-5

Graph.

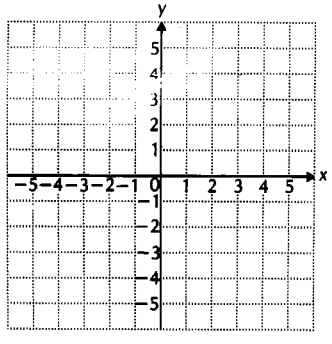
11. $y = -\frac{3}{5}x + 5$



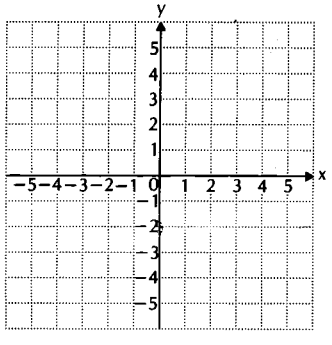
12. $y = -\frac{5}{3}x - 4$



13. $y = 4$



14. $3y + 6 = 0$
(*Hint:* Solve for y.)



ANSWERS ON PAGE A-5

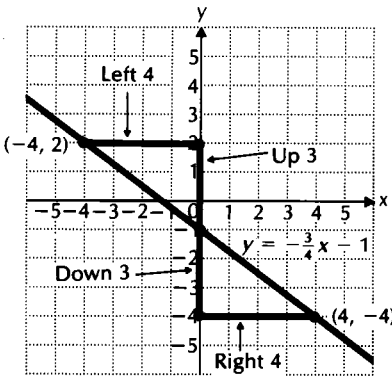
Example 7 Graph $y = -\frac{3}{4}x - 1$.

a) The slope is $-\frac{3}{4}$. The y-intercept is $(0, -1)$.

b) Plot the y-intercept.

c) The slope is $-\frac{3}{4}$, or $\frac{-3}{4}$. It tells us that from the y-intercept the line slants *down* 3 units for every 4 units to the *right*.

Then in this direction from the y-intercept $(0, -1)$ we get the point $(4, -4)$. Now we move to the left from the y-intercept. For every 3 units we move *up* we move 4 units to the *left*. This gives us the point $(-4, 2)$. We then join these three points with a line to complete the graph.



DO EXERCISES 11 AND 12.

All the equations we have been graphing so far have graphs that are straight lines. Therefore, they are called *linear* equations. We know that any equation $y = mx + b$ is linear, but there are other equations that have straight lines for graphs.

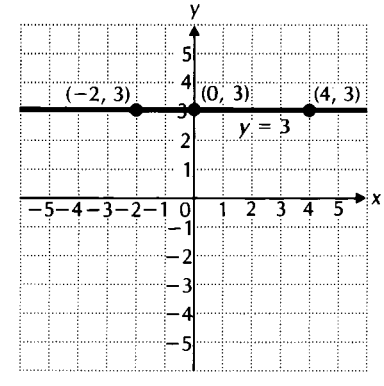
GRAPHS THAT ARE PARALLEL TO AN AXIS

Some equations have graphs that are parallel to one of the axes. These equations have a missing variable. In the following example, x is missing.

Example 8 Graph $y = 3$.

Since x is missing, any number for x will do. Thus all ordered pairs $(x, 3)$ are solutions. The graph is a line parallel to the x-axis.

x	y
−2	3
0	3
4	3



DO EXERCISES 13 AND 14.