

For each of the following, write down the gradient and y-intercept. Use them to draw the graph without a table

1. $y = 2x + 1$

x	0	1	2	3	4	5
y	1	3	5	7	9	11

Gradient = 2
Intercept = 1

2. $y = 3x + 1$

x	0	1	2	3	4	5
y	1	4	7	10	13	16

Gradient = 3
Intercept = 1

3. $y = 4x + 1$

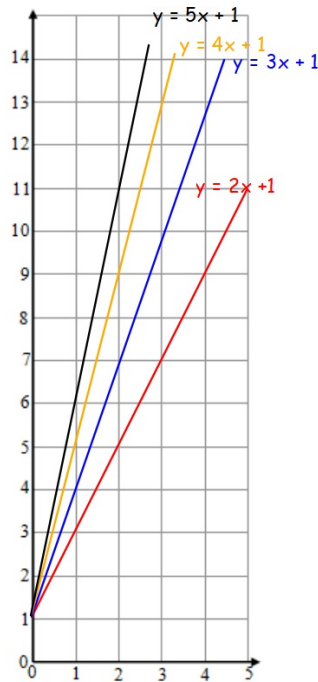
x	0	1	2	3	4	5
y	1	5	9	13	17	21

Gradient = 4
Intercept = 1

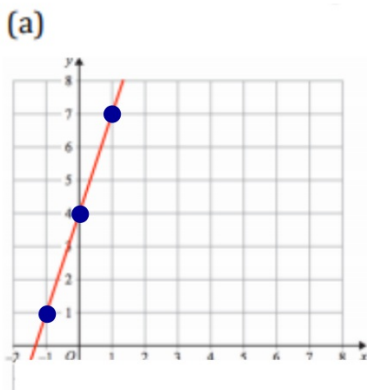
4. $y = 5x + 1$

x	0	1	2	3	4	5
y	1	6	11	16	21	26

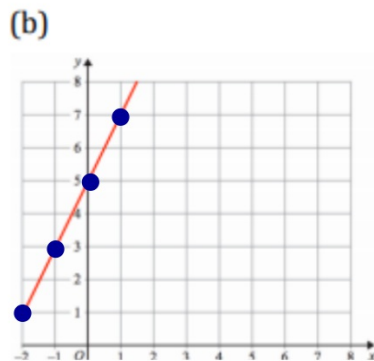
Gradient = 5
Intercept = 1



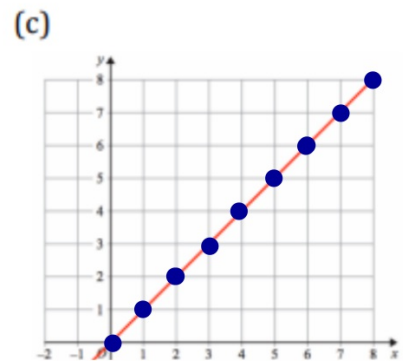
Find the equation of each line



$y = 3x + 4$



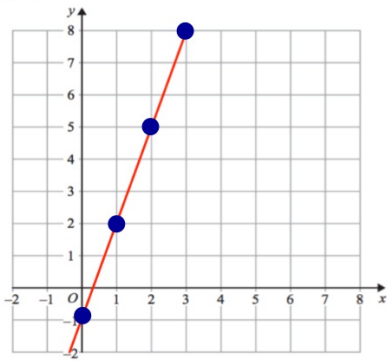
$y = 2x + 5$



$y = 1x + 0$

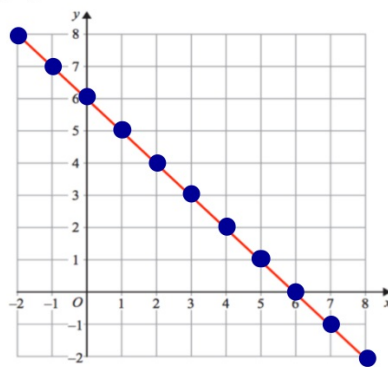
or $y = x$

(d)



$$y = 3x - 1$$

(e)

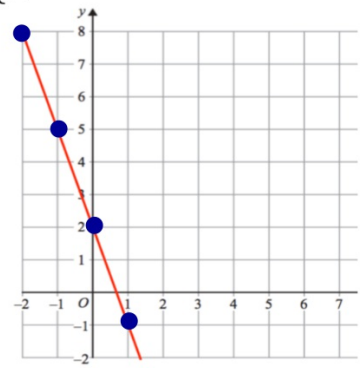


$$y = -1x + 6$$

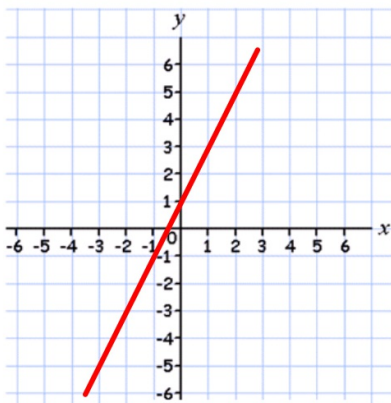
or

$$y = -x + 6$$

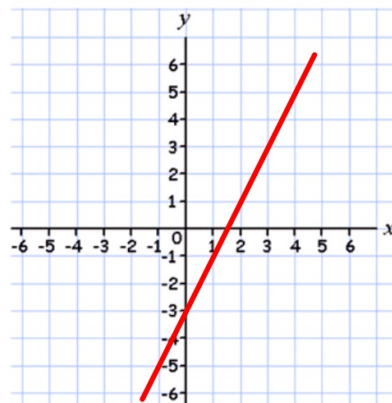
(f)



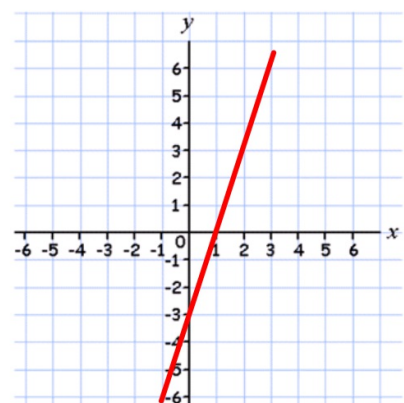
$$y = -2x + 2$$



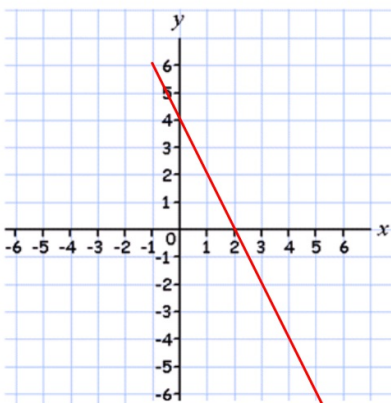
Draw... $y = 2x + 1$



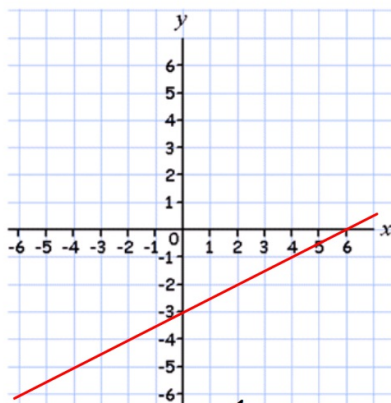
Draw... $y = 2x - 3$



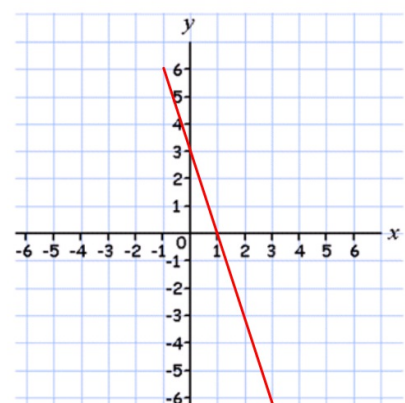
Draw... $y = 3x - 3$



Draw... $y = -2x + 4$

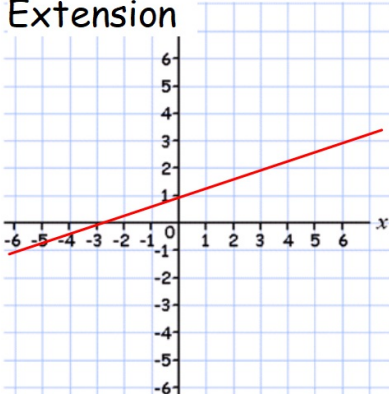


Draw... $y = \frac{1}{2}x - 3$

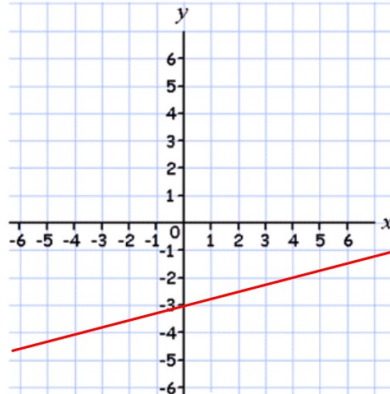


Draw... $y = -3x + 3$

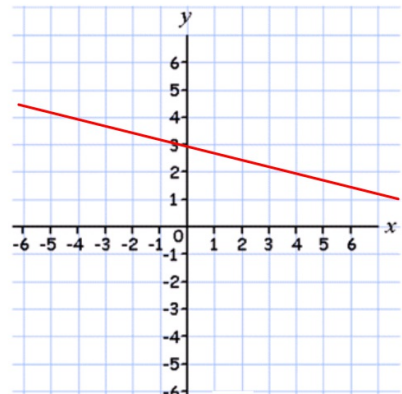
Extension



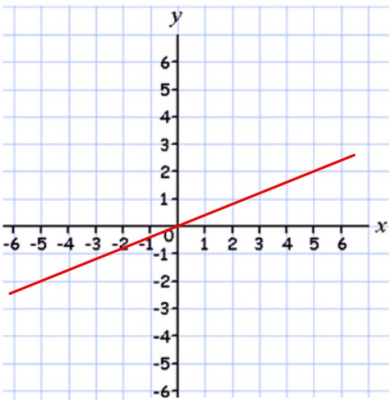
Draw... $y = \frac{1}{3}x + 1$



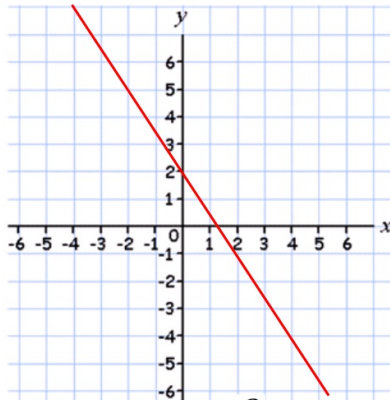
Draw... $y = \frac{1}{4}x - 3$



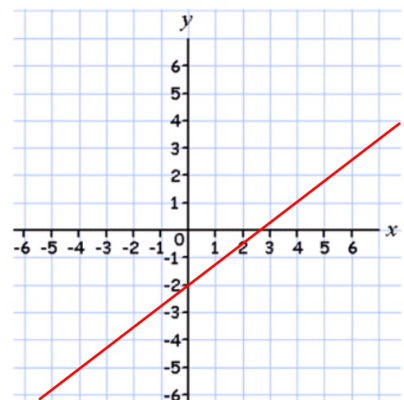
Draw... $y = -\frac{1}{4}x + 3$



Draw... $y = \frac{2}{5}x$



Draw... $y = -\frac{3}{2}x + 2$



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

Question 1: Write down the gradient of each of these lines.

- | | | | |
|--|--|--------------------------------|--------------------------------|
| (a) $y = 3x + 1$
3 | (b) $y = 2x - 5$
2 | (c) $y = 7x + 4$
7 | (d) $y = 10x + 5$
10 |
| (e) $y = x - 2$
1 | (f) $y = 6x$
6 | (g) $y = -4x + 3$
-4 | (h) $y = -3x - 7$
-3 |
| (i) $y = \frac{1}{2}x + 3$
1/2 | (j) $y = -\frac{4}{5}x - 9$
-4/5 | | |

Question 2: Write down where each of these lines cross the y-axis (y-intercept)

- | | | | |
|---|---|-----------------------------|---------------------------|
| (a) $y = 2x + 3$ 3 | (b) $y = 7x + 1$ 1 | (c) $y = 3x - 2$ -2 | (d) $y = x - 5$ -5 |
| (e) $y = 2x$ 0 | (f) $y = -4x + 6$ 6 | (g) $y = -5x - 3$ -3 | (h) $y = -3x$ 0 |
| (i) $y = \frac{4}{3}x + \frac{2}{5}$ 2/5 | (j) $y = -\frac{2}{3}x - \frac{1}{2}$ -1/2 | | |

Question 3 Write the equation of these lines

(a) gradient of 3 and y-intercept of 6

$$y = 3x + 6$$

(b) gradient of 2 and y-intercept of -1

$$y = 2x - 1$$

(c) gradient of -4 and y-intercept of 3

$$y = -4x + 3$$

(d) gradient of 8 and y-intercept of 4

$$y = 8x + 4$$

(e) gradient of 1 and passing through (0, 4)

$$y = 1x + 4$$

OR $y = x + 4$

(f) passing through (0, -2) with gradient 4

$$y = 4x - 2$$

(g) gradient of -5 and passing through the origin.

$$y = -5x + 0$$

(0, 0)

OR $y = -5x$

Question 4 Write the equation of a line that...

(a) has a gradient of 4 and passes through the point (1, 10)

$$y = 4x + c$$

$$10 = 4(1) + c$$

$$10 = 4 + c$$

$$c = 6$$

$$y = 4x + 6$$

x y

(b) has a gradient of 2 and passes through the point (-3, 3)

$$y = 2x + c$$

$$3 = 2(-3) + c$$

$$3 = -6 + c \quad c = 9$$

$$y = 2x + 9$$

c) has a gradient of 1 and passes through the point (5, 2)

$$y = 1x + c$$

$$2 = 1(5) + c$$

$$2 = 5 + c$$

$$c = -3$$

$$y = 1x - 3$$

(d) has a gradient of -3 and passes through the point (-2, 8)

$$y = -3x + c$$

$$8 = -3(-2) + c$$

$$8 = 6 + c$$

$$c = 2$$

$$y = -3x + 2$$

(e) has a gradient of -5 and passes through the point (3, -1)

$$y = -5x + c$$

$$-1 = -5(3) + c$$

$$-1 = -15 + c$$

$$c = 14$$

$$y = -5x + 14$$

(f) has a gradient of $\frac{1}{2}$ and passes through the point (4, 5)

$$y = \frac{1}{2}x + c$$

$$5 = \frac{1}{2}(4) + c$$

$$5 = 2 + c \quad c = 3$$

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

Find the equation of the line that passes through points:

a. $(1, 5)$ $(4, 14)$

$$m = \frac{9}{3} = 3$$

$$y = 3x + c$$

$$14 = 3(4) + c$$

$$14 = 12 + c$$

$$c = 2$$

$$y = 3x + 2$$

1. Find 'm'
2. Write $y = mx + c$ with value for 'm'
3. Substitute a coordinate pair to find 'c'

b. $(2, 3)$ $(7, 13)$

$$m = \frac{10}{5} = 2$$

$$y = 2x + c$$

$$3 = 2(2) + c$$

$$3 = 4 + c$$

$$c = -1$$

$$y = 2x - 1$$

c. $(1, 7)$ $(4, 22)$

$$m = \frac{15}{3} = 5$$

$$y = 5x + c$$

$$22 = 5(4) + c$$

$$22 = 20 + c$$

$$c = 2$$

$$y = 5x + 2$$

d. $(-5, 3)$ $(-3, 4)$

$$m = \frac{1}{2}$$

$$y = \frac{1}{2}x + c$$

$$4 = \frac{1}{2}(-3) + c$$

$$4 = -1.5 + c$$

$$c = 5.5$$

$$y = \frac{1}{2}x + 5.5$$

e. $(4, 5)$ $(2, 7)$

$$m = \frac{2}{-2} = -1$$

$$y = -1x + c$$

$$y = -1x + 9$$

$$7 = -1(2) + c$$

$$7 = -2 + c$$

$$c = 9$$