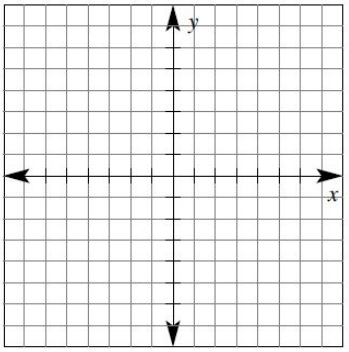
QUESTION **5** On the same number plane, draw the graphs of the following.

a $y = 2x + 1$

b $y = 2x - 1$

c $x + 2y = 4$

d $2x - 3y = 6$



QUESTION **2** Graph each pair of lines on the same number plane and find their point of intersection.

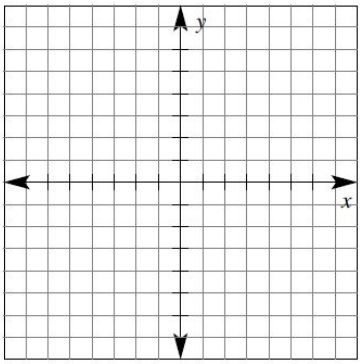
a $y = 2x + 1$; $y = -2x + 1$

$y = 2x + 1$

x	0	1	2
y			

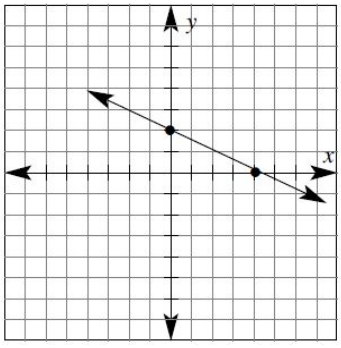
$y = -2x + 1$

x	0	1	2
y			

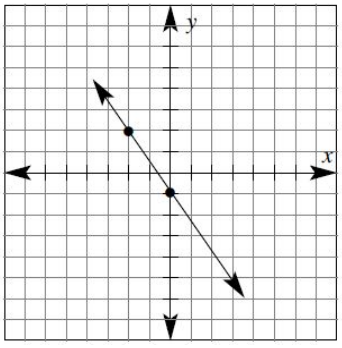


QUESTION **2** Find the gradient of each line.

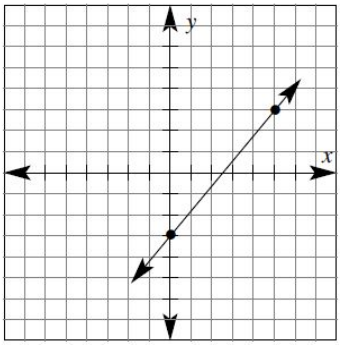
a



b



c



QUESTION **1** Andrew receives a fixed amount of pocket money each week. In addition, if Andrew chooses to help his mother, she gives him an extra amount per hour for the time worked. The graph shows the amount of money Andrew might receive in pocket money each week.

a What is the intercept on the vertical axis?

_____

_____

b What does the intercept on the vertical axis represent?

_____

_____

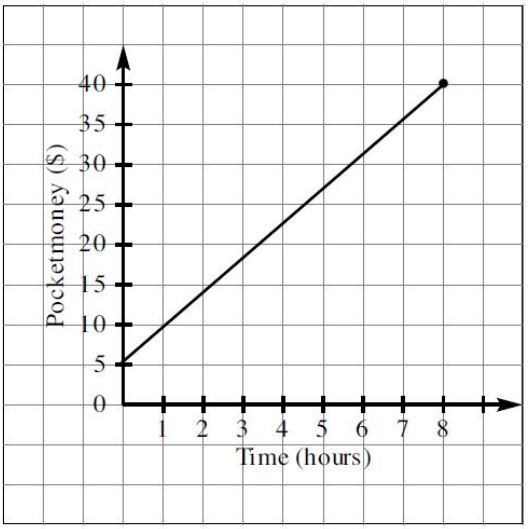
c What is the gradient of this line? _____

_____

_____

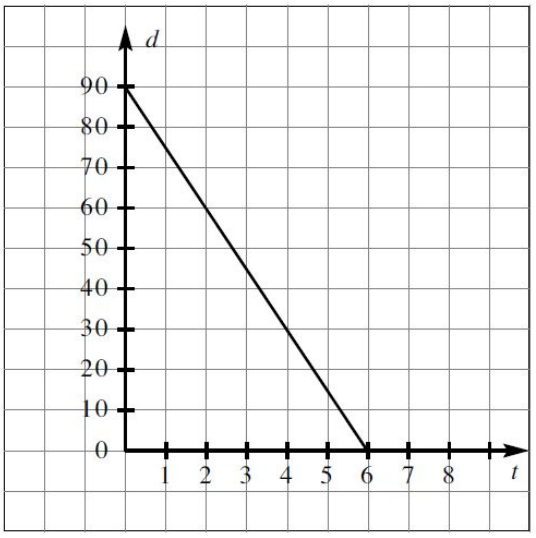
d What does the gradient represent? _____

_____



LINEAR RELATIONSHIPS

QUESTION 2 Melissa intends to ride a bicycle from Baxton to Clair to raise money for the local hospital. The graph shows her expected distance from Clair in kilometres over time (in hours).



a What is the intercept on the vertical axis?

_____

_____

b What information does this intercept tell us?

_____

_____

c What is the gradient of the line? _____

_____

_____

d What information does the gradient tell us?

_____

_____

e What is the equation of the line?

_____

QUESTION 1 For each given equation, write down the gradient and y-intercept.

a $y = 3x - 5$

gradient: _____

y-intercept: _____

b $y = 2x + 3$

gradient: _____

y-intercept: _____

c $y = x - 8$

gradient: _____

y-intercept: _____

QUESTION 2 Write down the equation of the line with:

a Gradient: 4

y-intercept: 1

_____

b Gradient: –3

y-intercept: 2

_____

c Gradient: 5

y-intercept: –1

_____

QUESTION 2 Each of the following equations is in general form. Change it to the gradient-intercept form, then write down its gradient and y-intercept.

a $2x + 3y - 8 = 0$

_____

_____

b $x + 5y - 7 = 0$

_____

_____

c $3x - 2y - 3 = 0$

_____

_____

d $x - y + 7 = 0$

_____

_____

e $2x + y - 9 = 0$

_____

_____

f $5x - 6y + 11 = 0$

_____

_____

LINEAR RELATIONSHIPS

QUESTION 1 Find the gradient of the line joining:

a (1, 2) and (3, 5) **b** (4, –1) and (5, –3) **c** (–8, –3) and (1, –6) **d** (0, 0) and (5, 1)

QUESTION 1 Find the equation of the line passing through the point P with gradient m. Give the answer in gradient-intercept form.

a P(1, 3) $m = 2$ **b** P(–3, 5) $m = 4$ **c** P(4, –1) $m = -1$

QUESTION 3 Find the gradient of any line perpendicular to:

a $y = 2x + 1$ **b** $y = -\frac{4}{3}x$ **c** $x - 3y + 6 = 0$

QUESTION 4 Show that the line joining (–1, 8) and (5, –2) is parallel to the line $5x + 3y + 2 = 0$

QUESTION 3 The gradient of the line joining A(1, –5) to B(3, y) is –2. Find y.

QUESTION 4 Find the gradient of a line which makes an angle with the positive direction of the x-axis of:

a 45° **b** 135°

LINEAR RELATIONSHIPS

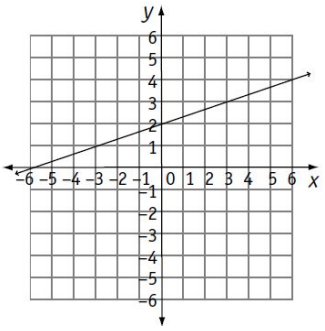
QUESTION 3 Determine the gradient and y-intercept from the diagram and hence write down the equation of the given line.

a

gradient = _____

y-intercept = _____

equation: _____

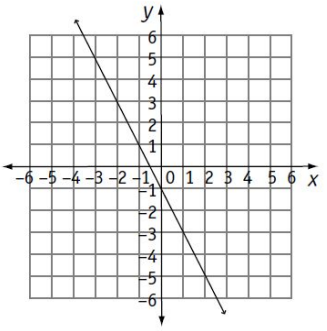


b

gradient = _____

y-intercept = _____

equation: _____

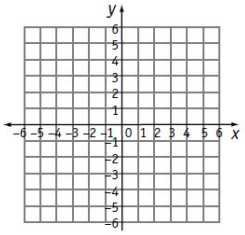


QUESTION 4 Write down the gradient and y-intercept for each equation and hence graph the line on the given grid.

a $y = 3x - 2$

gradient = _____

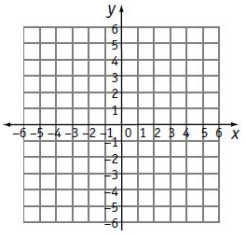
y-intercept = _____



b $y = -\frac{1}{2}x + 1$

gradient = _____

y-intercept = _____



QUESTION 3 A straight line with gradient $-\frac{1}{4}$ passes through the point $(1, -5)$. Where does it cut the y-axis?

_____ _____

_____ _____

_____ _____

QUESTION 1 Find the equation of the line, in general form, joining the points:

a $(1, 3)$ and $(2, 7)$

_____

_____

_____

_____

b $(3, -2)$ and $(0, 5)$

_____

_____

_____

_____

QUESTION 5 Show that the line joining $(3, 4)$ and $(-6, -1)$ is perpendicular to the line $9x + 5y - 4 = 0$

_____ _____

_____ _____

_____ _____

_____ _____