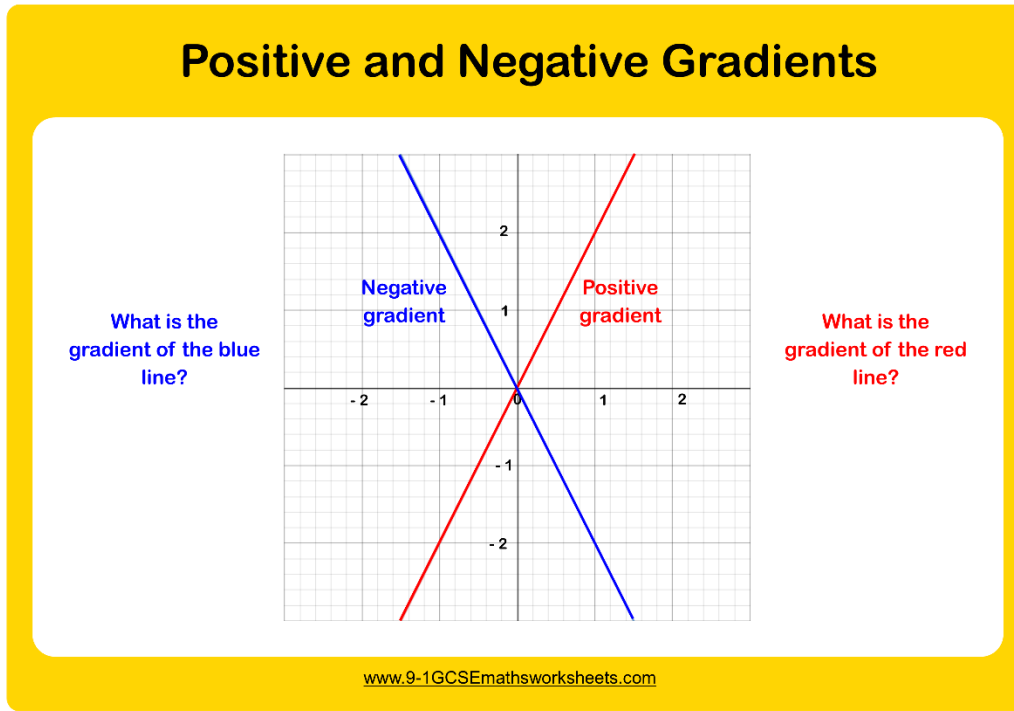




Gradient

Mathematics PT3

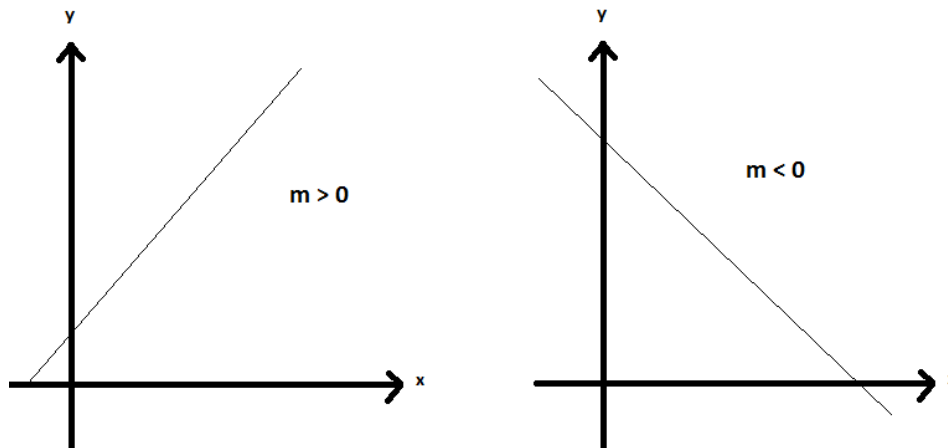
Gradient of A Straight Line **Kecerunan**



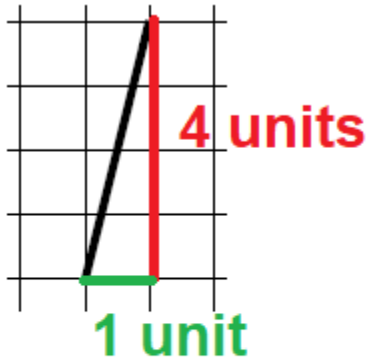
A straight line graph will follow the general equation below **Persamaan garis lurus**

$$y = mx + c$$

Examples of linear graph **Kecerunan garis lurus**

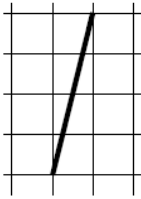


Gradient from Diagram

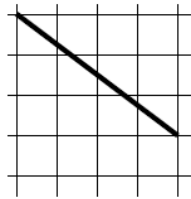


$$\text{Gradient} = \frac{4}{1} = 4$$

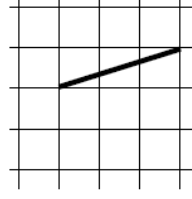
Determine the gradient for the following lines



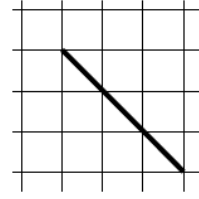
Ans:.....



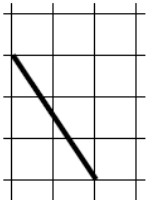
Ans:.....



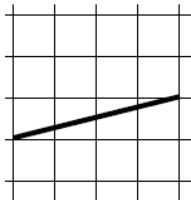
Ans:.....



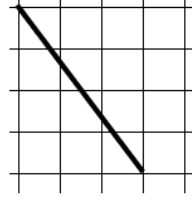
Ans:.....



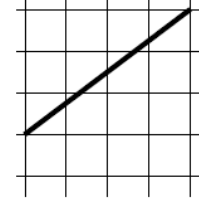
Ans:.....



Ans:.....

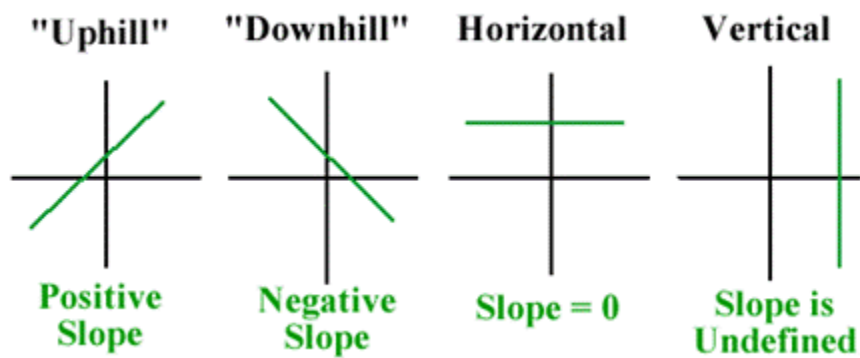
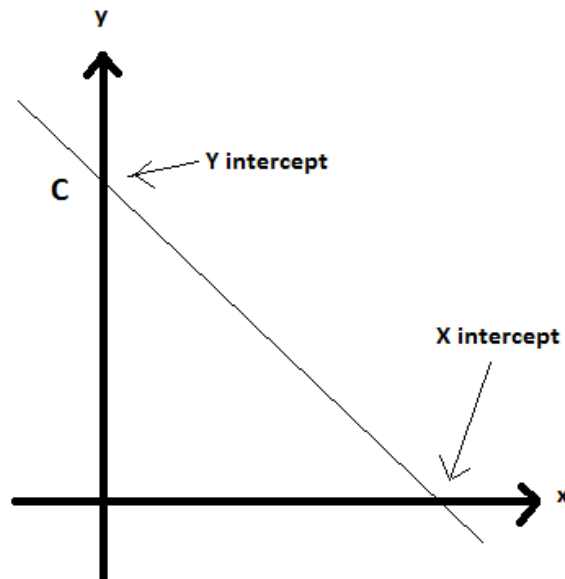


Ans:.....



Ans:.....

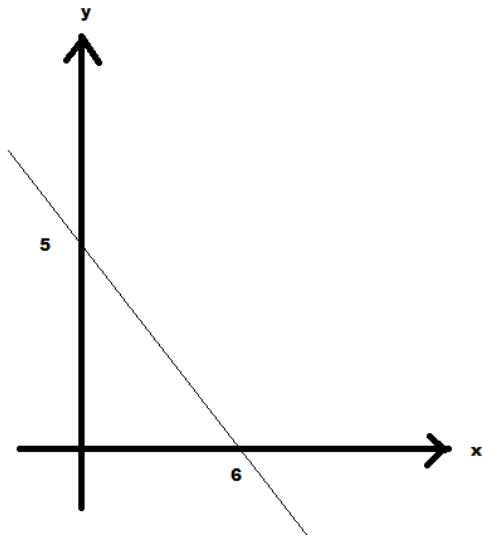
Understanding about intercept



Gradient / Formula kecerunan

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the gradient of the graph **Cari kecerunan graf**



Solution:

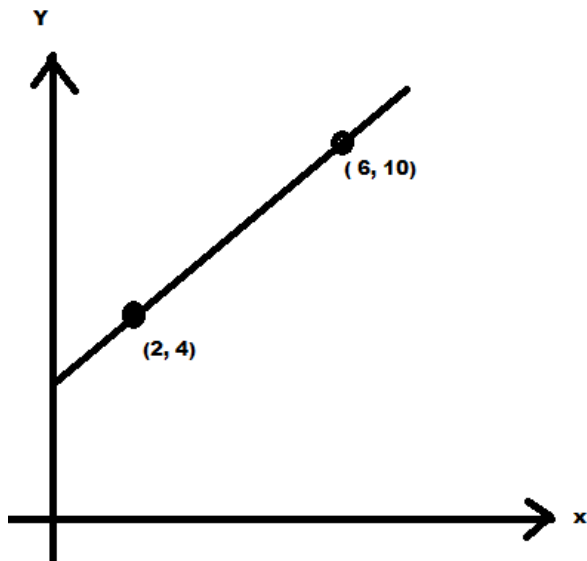
Gradient of the graph is given by

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$m = \frac{5 - 0}{0 - 6} = -\frac{5}{6}$$

The graph both touches the x axis and the y axis Coordinate should be this **Graf di atas menyentuh paksi x dan paksi y**

Example

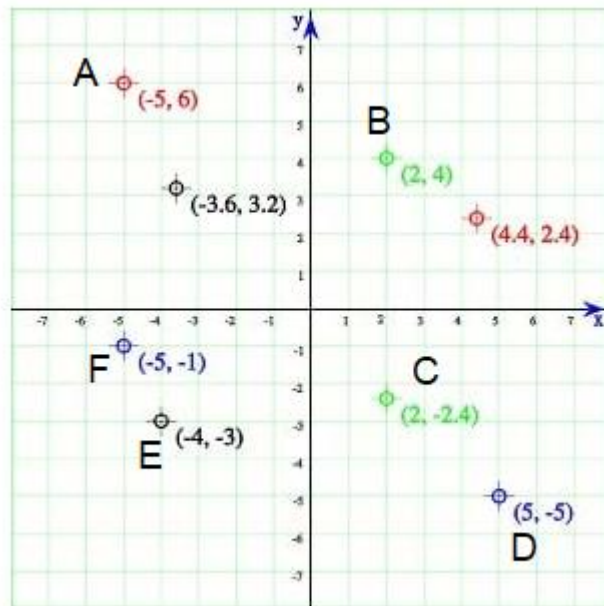
Find the gradient for the following graph given the graph below **Cari kecerunan graf dibawah**



Find the gradient of the graph **Cari kecerunan graf dibawah**

$$m = \frac{10 - 4}{6 - 2} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$$

Question 1



Find the gradient the coordinate below **Cari kecerunan graf**

Gradient of AB Kecerunan AB	Solution:
Gradient of DE Kecerunan DE	Solution
Gradient of AC Kecerunan AC	Solution

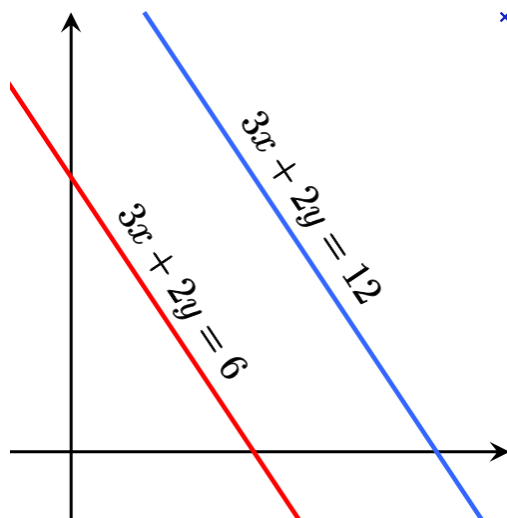


<p>Gradient of BF Kercerunan BF</p>	<p>Solution:</p>
<p>Gradient of DA Kercerunan DA</p>	<p>Solution</p>
<p>Gradient of AF Kercerunan AF</p>	<p>Solution</p>
<p>Gradient of EA Kercerunan EA</p>	<p>Solution</p>

Parallel Lines

How do you determine Parallel Lines given equation?

Ensure that the gradient is the same $m_1 = m_2$



$$y = mx + c$$

The blue line is showing the equation **Persamaan garis biru**

$$\begin{aligned}3x + 2y &= 12 \\2y &= -3x + 12 \\y &= -1\frac{1}{2}x + 6\end{aligned}$$

The red line is showing the equation **Persamaan garis merah**

$$\begin{aligned}3x + 2y &= 6 \\2y &= -3x + 6 \\y &= -1\frac{1}{2}x + 3\end{aligned}$$

Both having the same gradient of $m = -1\frac{1}{2}$ **Kedua dua garis lurus mempunyai kecerunan yang sama**

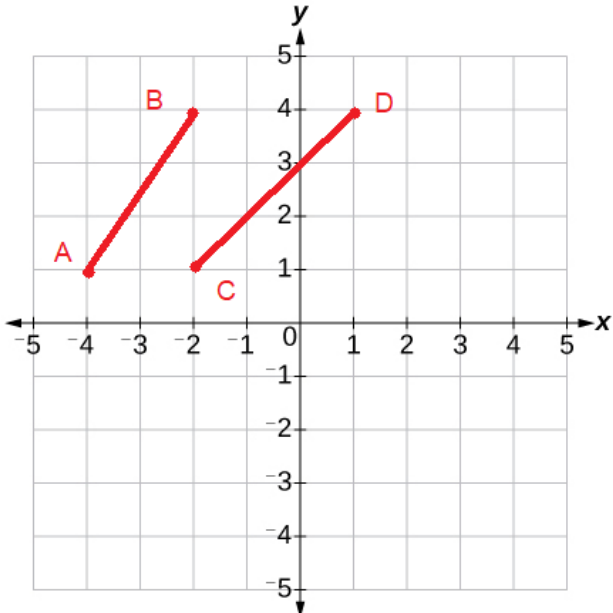


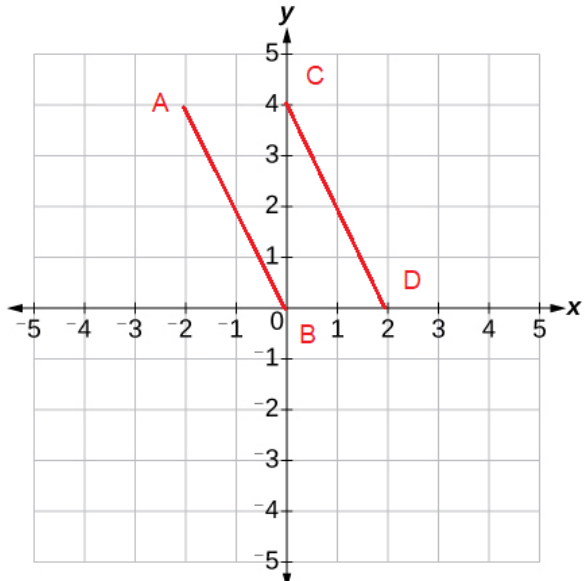
Determine whether the 2 lines of having the same gradient.

Tentukan sama ada 2 baris mempunyai kecerunan yang sama

Questions	Solutions
$2x + y = 4$ $y = -2x + 5$	
$x + 2y = 4$ $y = -2x + 5$	
$-3x + y = 7$ $y = 3x + 5$	
$2x + 2y = 4$ $y = -x + 5$	

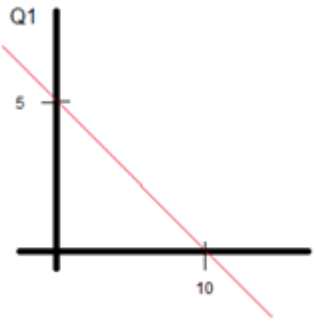
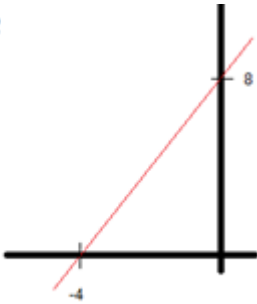
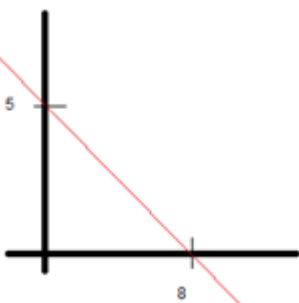
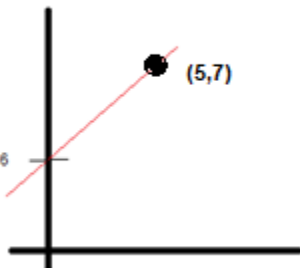


Question 1	Solution
<p>Determine whether the AB line is parallel to CD Line Adakah garis AB selari dengan Garis CD</p> 	

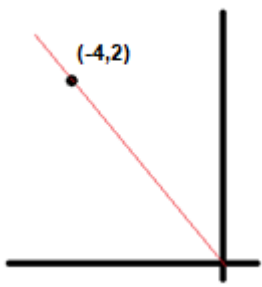
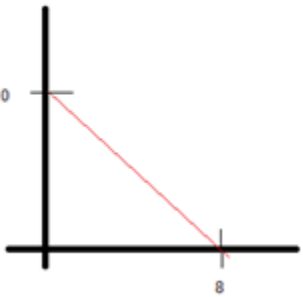

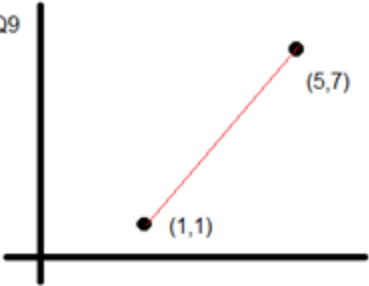
Question 2	Solution
<p>Determine whether the AB line is parallel to CD Line Adakah garis AB selari dengan Garis CD</p> 	

Questions

Find the gradient for each of the following straight line **Cari kecerunan setiap garis lurus**

<p>Q1</p> 	
<p>Q2</p> 	
<p>Q3</p> 	
<p>Q4</p> 	



<p>Q5</p> 	
<p>Q6</p> 	
<p>Q8</p> 	
<p>Q9</p> 	



Question 1

Given the gradient of the line is 4. If the start point of the coordinate is (3,4). Find the coordinate at the other end (1, y). **Diberi kecerunan garis adalah 4, sekiranya koordinat pertama ialah (3,4). Cari koordinat yang kedua (1, y).**

Question 2

Given the gradient of the line is 4. If the start point of the coordinate is (2,4). Find the coordinate at the other end (x, 3).. **Diberi kecerunan garis adalah 4, sekiranya koordinat pertama ialah (2,4). Cari koordinat yang kedua (x,3).**


Question 3

Given the gradient of the line is -2. If the start point of the coordinate is (1,6). Find the coordinate at the other end (0, y). **Diberi kecerunan garis adalah -2, sekiranya koordinat pertama ialah (1,6). Cari koordinat yang kedua (0, y).**



Question 4

Given the gradient of the line is 1.5. If the start point of the coordinate is (3,6). Find the coordinate at the other end (-3, y). **Diberi kecerunan garis adalah 1.5, sekiranya koordinat pertama ialah (3,6). Cari koordinat yang kedua (-3, y).**

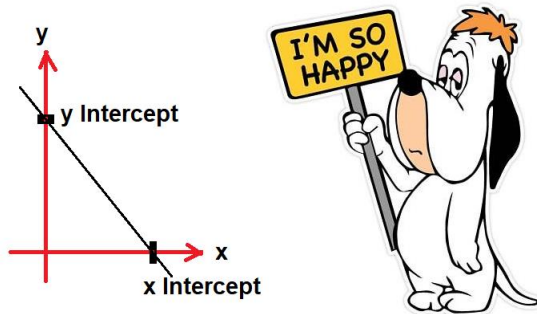


Question 5

Given the gradient of the line is -3. If the start point of the coordinate is (5,2). Find the coordinate at the other end (-1, y). **Diberi kecerunan garis adalah -3, sekiranya koordinat pertama ialah (3,4). Cari koordinat yang kedua (1, y).**

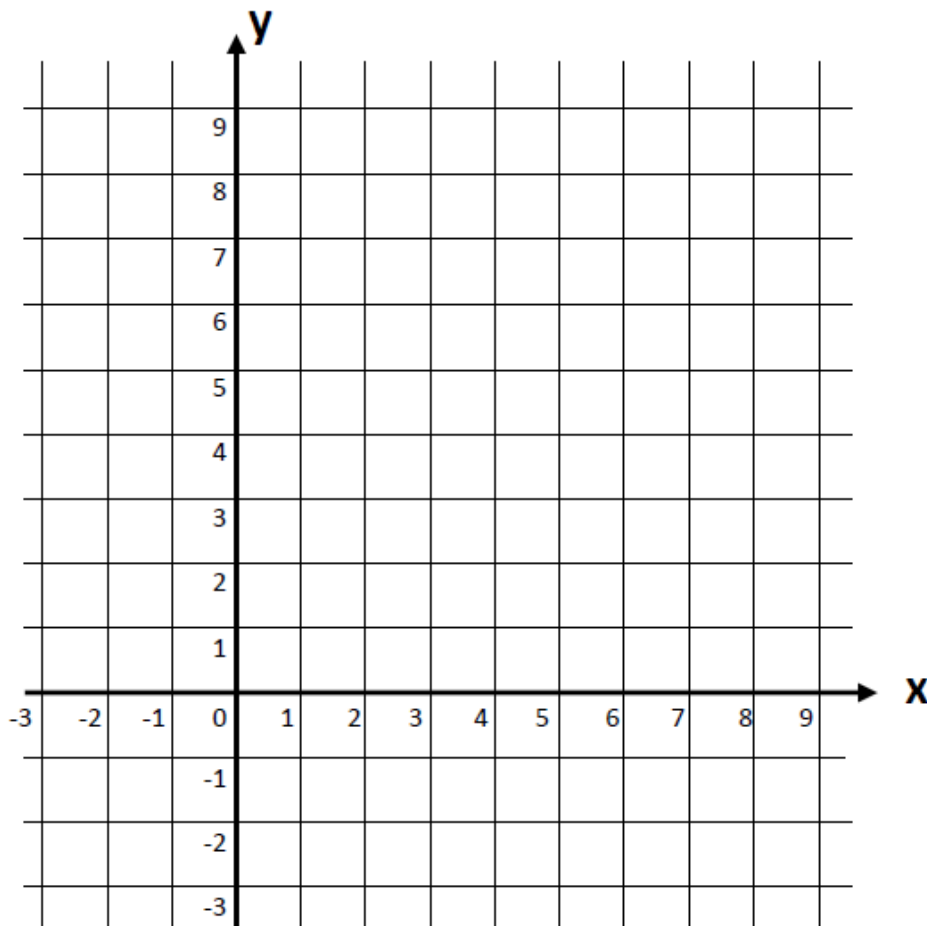


Intercepts



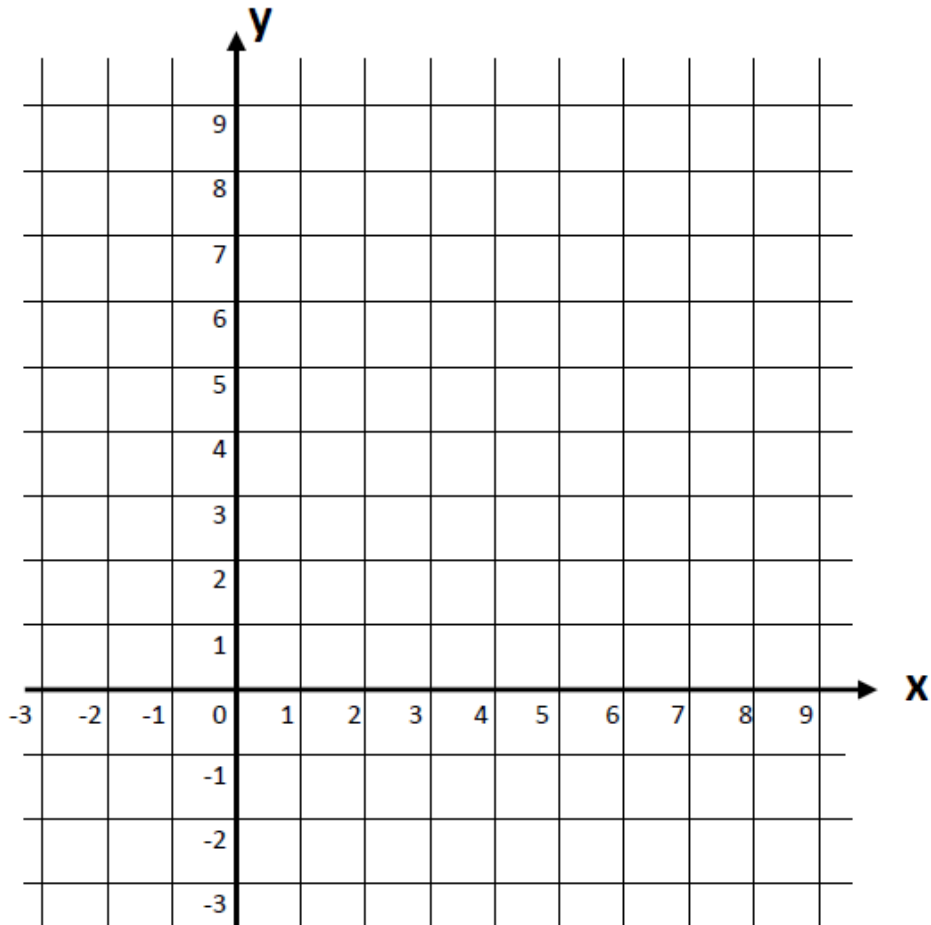
Question 1

Draw the gradient and intercepts given the equation $y = 2x + 1$. Lukis kecerunan dan pintasan- x dan pintasan- y. $y = 2x + 1$



Question 2

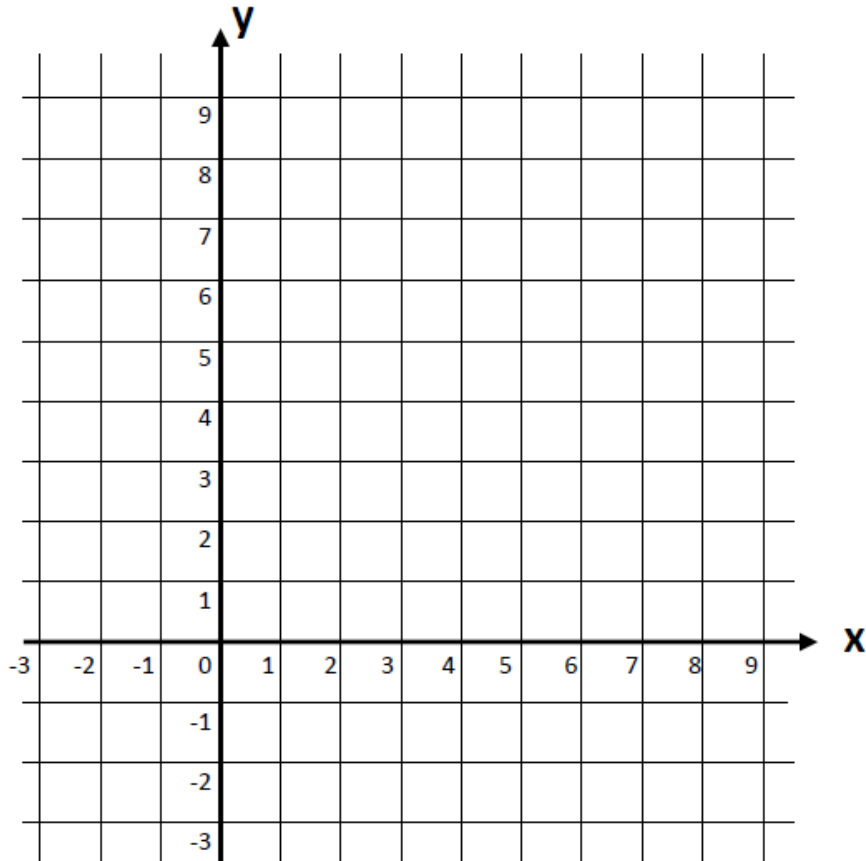
Draw the gradient and intercepts given the equation $y = x + 4$. . Lukis kecerunan dan pintasan- x dan pintasan- y. $y = x + 4$



Answer

Question 3

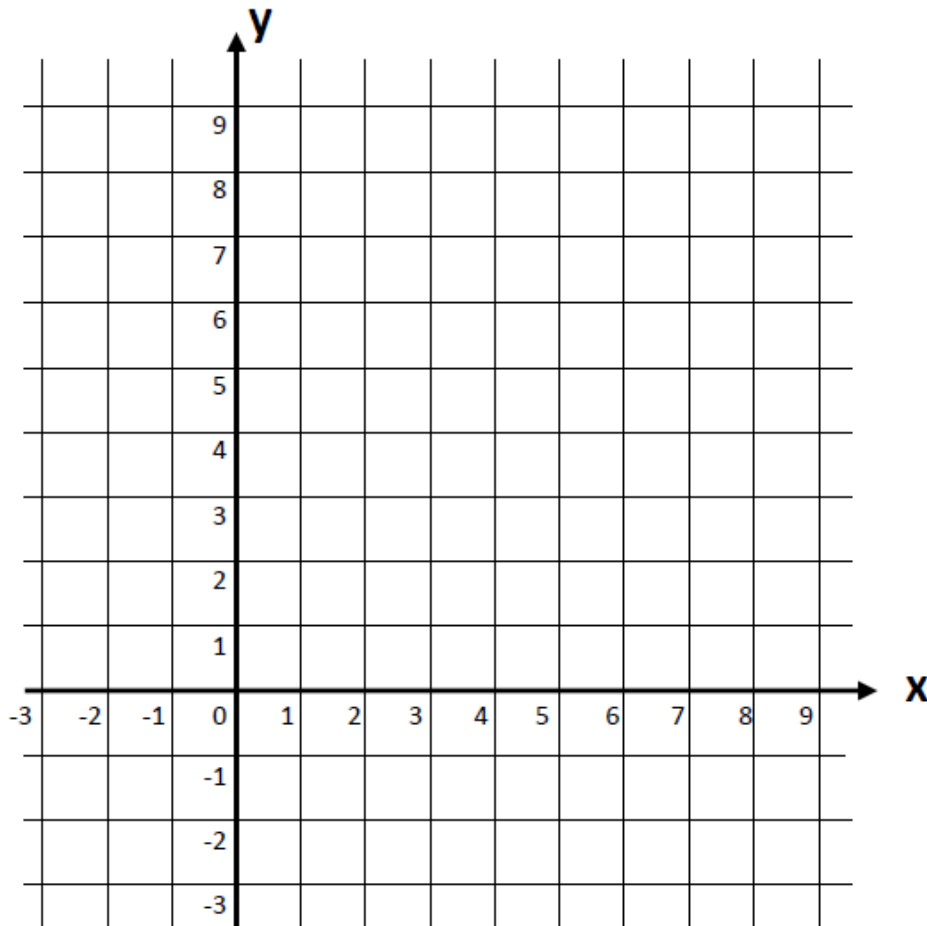
Draw the gradient and intercepts given the equation $y = 3x + 2$. . Lukis kecerunan dan pintasan- x dan pintasan- y. $y = 3x + 1$



Answer

Question 4

Draw the gradient and intercepts given the equation $y = -3x + 1$. Lukis kecerunan dan pintasan- x dan pintasan- y. $y = -3x + 1$



Answer