



Worksheet Sheet (3)

Sequences and linear graphs Ch. 14

Objectives:

1. To learn that an equation of a straight line is written in the form $y = mx + c$.
 2. To learn about the gradient "m" and the y-intercept "c".
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Equation of a straight line:

Equations of diagonal lines are usually written in the form:

$$Y = mx + c$$

Example: for the equations below, decide what is the gradient and what is the y-intercept

- i. $y = 2x + 3$
 $m = 2$ and $c = 3$
- ii. $y = -3x - 4$
 $m = -3$ and $c = -4$

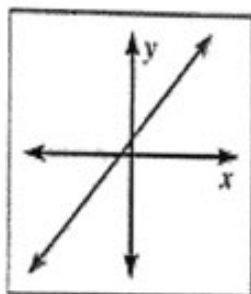


Types of slopes:

You can tell by looking at the graph if the gradient is negative, positive, zero or undefined.

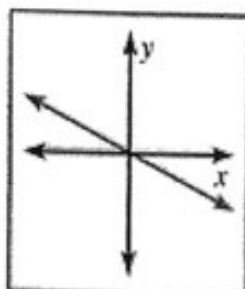
Look at the examples below:

- A line with a *positive* slope *rises* from left to right. ($m > 0$)
- A line with a *negative* slope *falls* from left to right. ($m < 0$)
- A line with a slope of *zero* is *horizontal*. ($m = 0$)
- A line with an *undefined* slope is *vertical*. (m is undefined.)



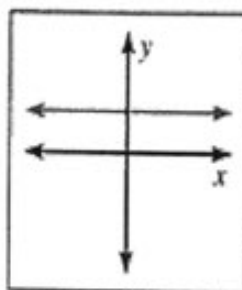
Positive slope

(positive gradient)
Diagonal line
sloping upwards



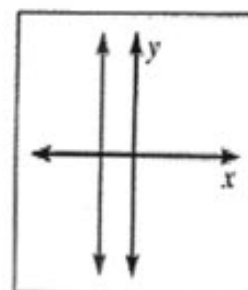
Negative slope

(Negative gradient)
Diagonal line
sloping downwards



Zero slope

(Zero gradient)
Equation is always
 $Y = \text{any number}$
Ex. $Y = 4$
The line is
horizontal, it crosses
the y-axis



Undefined slope

Equation is always
 $x = \text{any number}$
Ex. $x = 4$
The line is vertical it
crosses the x-axis

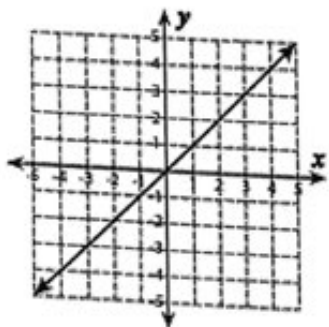
Answer the questions below:

Q1. For the equations below, write down the value of the gradient "m" and y-intercept "c":

$y = 3x + 1$ $m = 3$ $c = 1$	$y = -x + 4$ $m = -1$ $c = 4$	$y = 2x - 5$ $m = 2$ $c = -5$
$y = -3x + 2$ $m = -3$ $c = 2$	$y = 5x - 3$ $m = 5$ $c = -3$	$y = -6x$ $m = -6$ $c = 0$
$y = 4$ $m = 0$ $c = 4$	$y = 0.3x + 4$ $m = 0.3$ $c = 4$	$y = -0.2x - 0.5$ $m = -0.2$ $c = -0.5$
$y = 7x + 2$ $m = 7$ $c = 2$	$y = -6x - 8$ $m = -6$ $c = -8$	$y = -9x - \frac{1}{5}$ $m = -9$ $c = -\frac{1}{5}$
$y = x - 1$ $m = 1$ $c = -1$	$y = \frac{2}{3}x + 8$ $m = \frac{2}{3}$ $c = 8$	$y = -7$ $m = 0$ $c = -7$

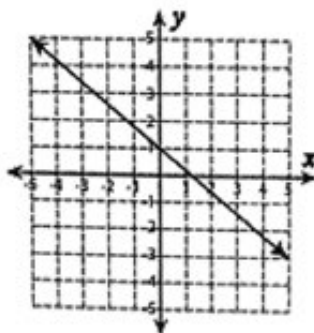
Q2. Identify the slope of each line as positive, negative, zero or undefined:

1)



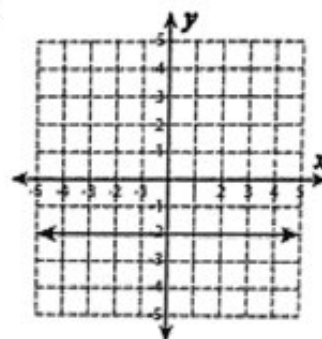
Positive

2)



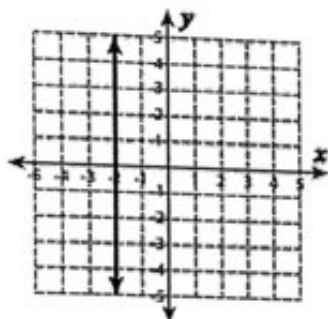
Negative

3)



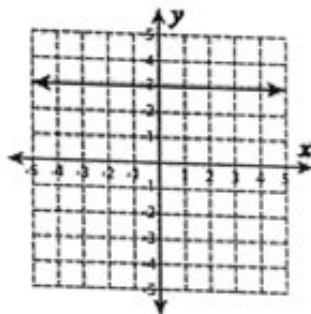
Zero

4)



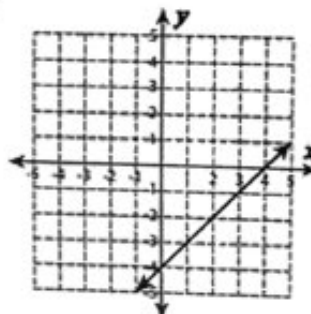
Undefined

5)



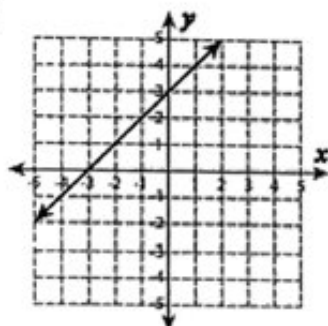
Zero

6)



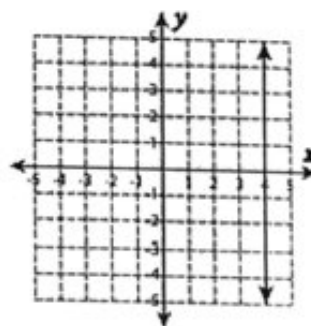
Positive

7)



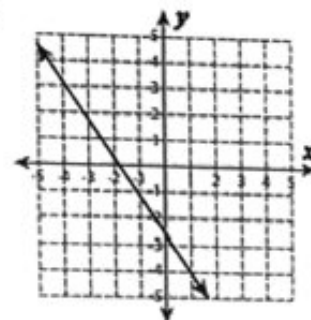
Positive

8)



Undefined

9)



Negative

Q3. Which of these equations are straight lines:

$y = 4x - 7$ ✓	$x = 7$ ✓	$y = x^2$	$y = \frac{1}{x}$
$y = 8 - x$ ✓	$y = x^2 - 3x + 4$	$y = 7 - x^3$	$y = -3$ ✓

Q4. Sort these lines into the two groups below:

$y = x$

$y = -4x$

$y = 7x$

$y = -x + 9$

$y = 6x - 2$

$y = 5x + 5$

$y = 11 - 6x$

$y = -x$

Line sloping upwards	Line sloping downwards
$y = x$	$y = -4x$
$y = 7x$	$y = -x + 9$
$y = 6x - 2$	$y = 11 - 6x$
$y = 5x + 5$	$y = -x$

• Answer the assigned questions on your copybook:

○ From **student** book:

Ex. 14E: Q2, Q3

○ From **homework** book:

P.92 Q8, Q9