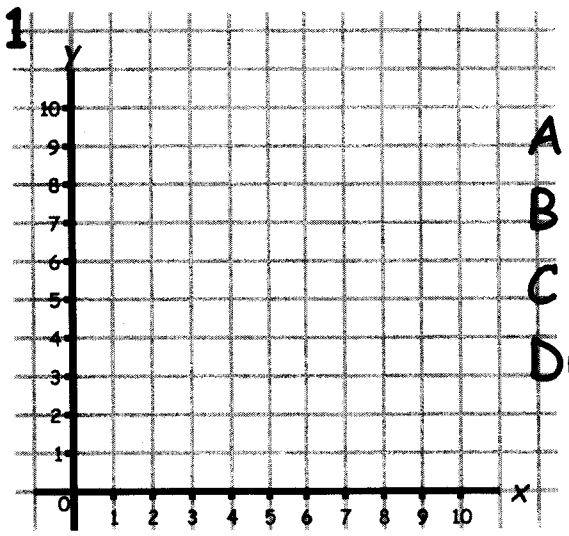
COORDINATES and STRAIGHT LINE GRAPHS

Page	Description
1	Coordinates in the first quadrant
2	Cordinates in all four quadrants
3	Introduction to straight line graphs and their rules
4	Gradients
5	Plot vertical, horizontal and diagonal lines
6	Plot vertical, horizontal and diagonal lines to form shapes
7	Find rules given straight lines
8	Find rules given straight lines
9	Reading the gradient and y intercept from a rule
10	Gradient of perpendicular lines
11	Recap

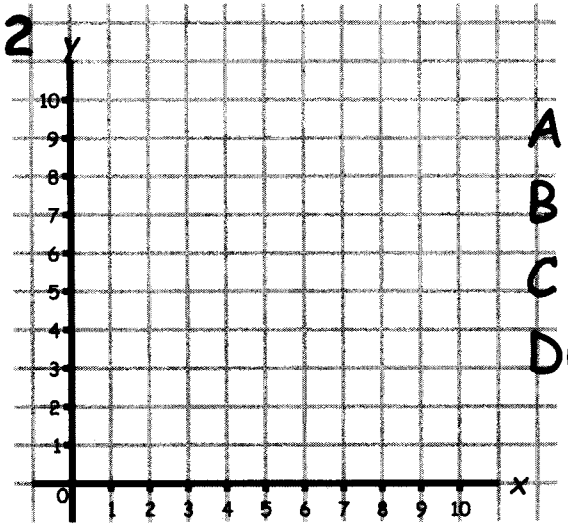
Plot the points,join them up in order to make a shape. Write the name of the shape.

1



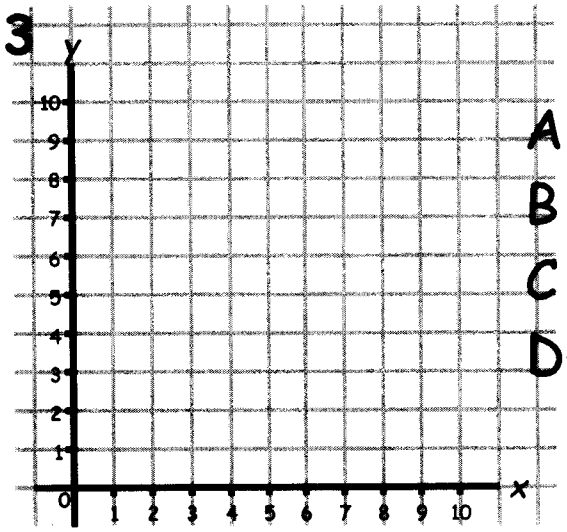
A (2,10)
B (9,10)
C (9,3)
D(2,3)

2



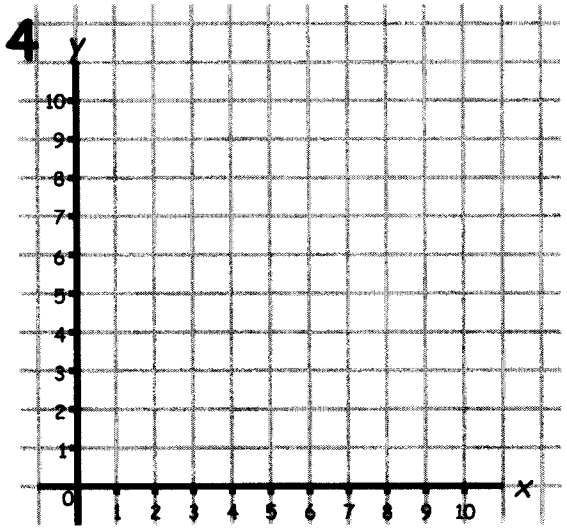
A (1,6)
B (9,8)
C (10,4)
D(2,2)

3



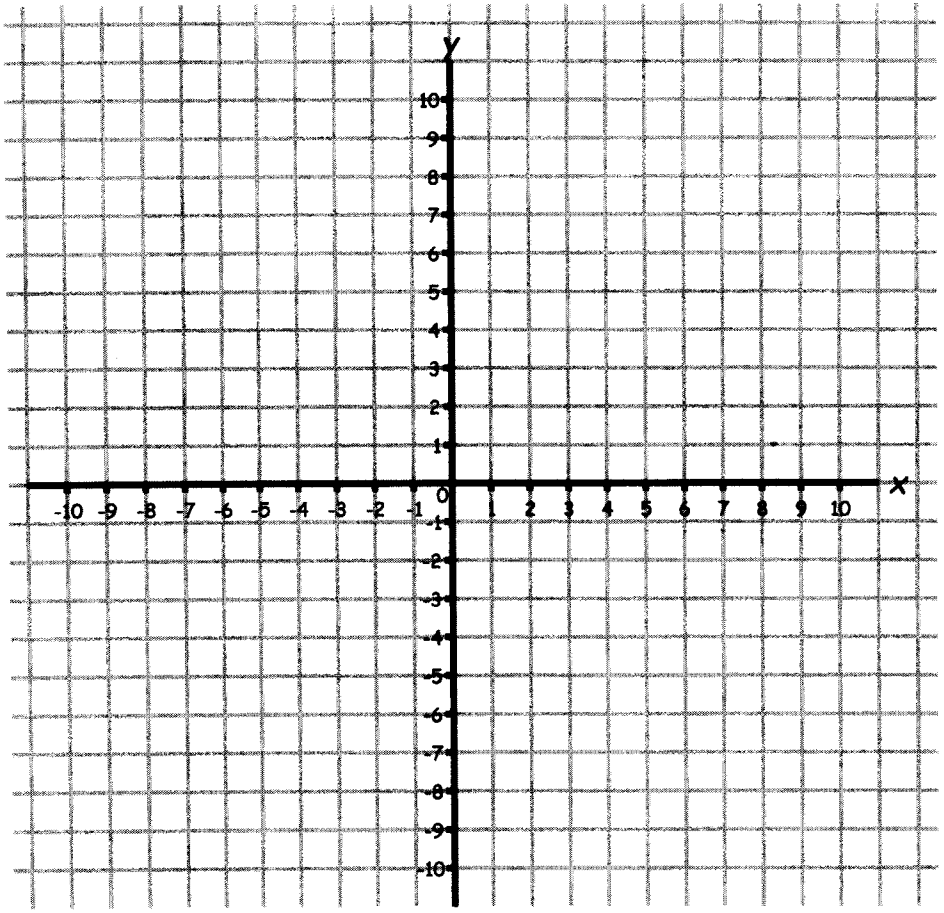
A (0,9)
B (7,9)
C (9,4)
D(2,4)

4



A (1,6)
B (3,10)
C (7,10)
D(9,6)
E (7,2)
F (3,2)

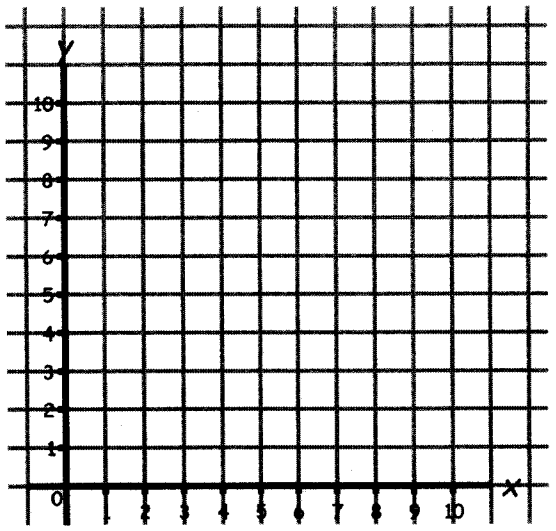
Plot the points,join them up in order to make a shape. Write the name of the shape.



A (-10,3)
B (-10,10)
C (-3,10)
D(-3,3)
E (2,4)
F (2,8)
G (8,8)
H(8,4)

I (-9,-6)
J (-8,-3)
K (-4,-3)
L(-2,-6)
M (3,-9)
N (3,-3)
O (8,-3)

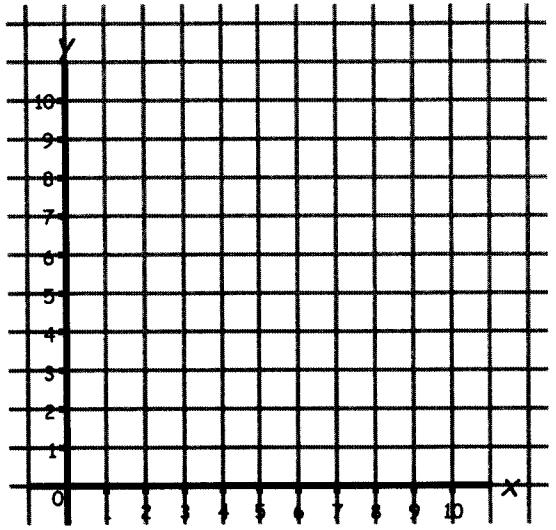
1) Plot these points on the grid



(0,3)
(1,3)
(2,3)
(3,3)
(4,3)
(5,3)
(6,3)
(7,3)
(8,3)
(9,3)
(10,3)

2) On the grid draw the line y = 8

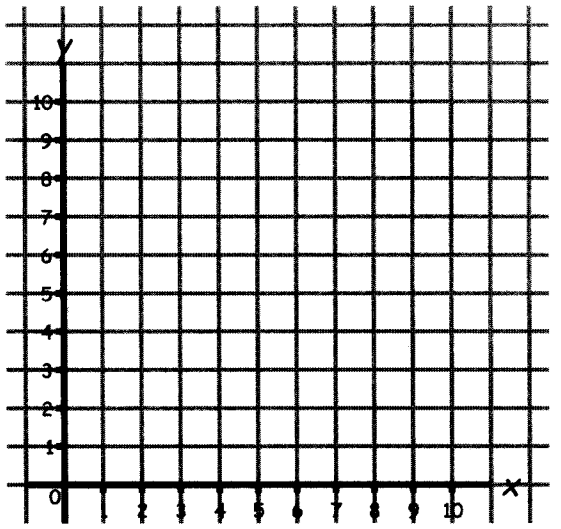
3) Plot these points on the grid



(4,0)
(4,1)
(4,2)
(4,3)
(4,4)
(4,5)
(4,6)
(4,7)
(4,8)
(4,9)
(4,10)

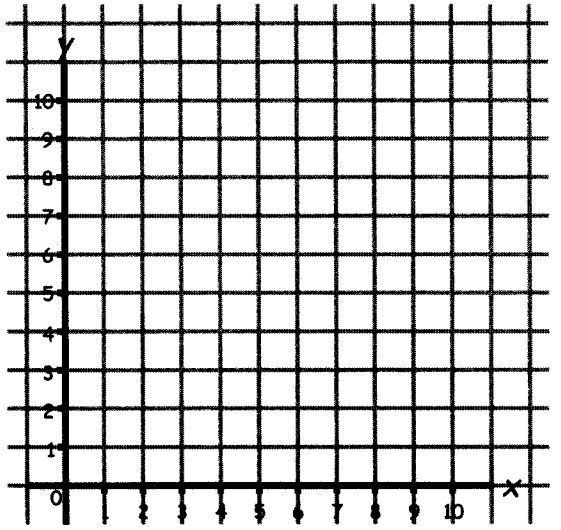
4) On the grid draw the line x = 9

5) Draw the line y = x + 1



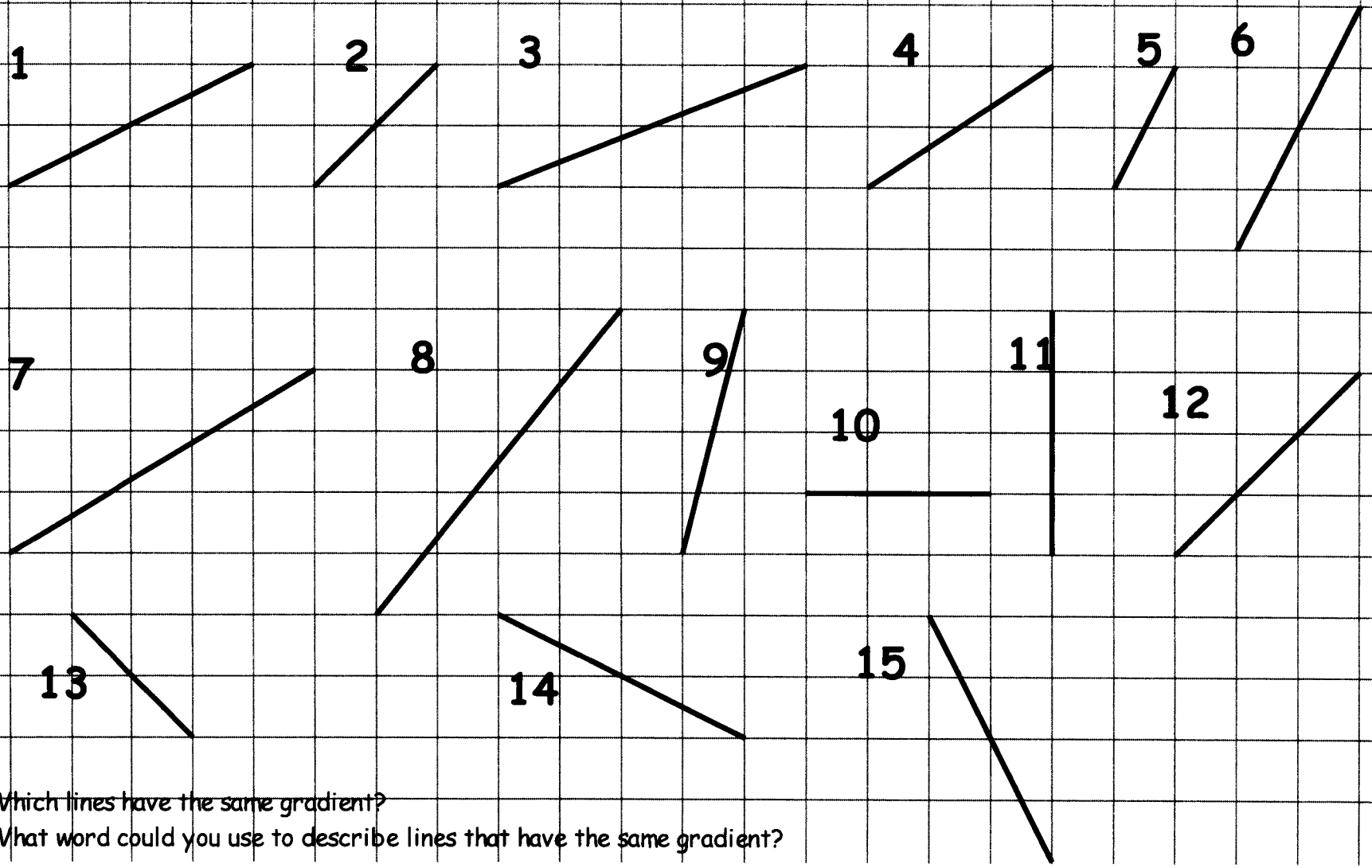
x	y = x + 1	plot (x,y)
0	y = 0 + 1 = 1	(0,1)
1	y = 1 + 1 = 2	(1,2)
2	y = 2 + 1 = 3	(2,3)
3		
4		
5		
6		
7		
8		
9		

6) Draw the line y = x + 3



x	y = x + 3	plot (x,y)
0	y = 0 + 3 = 3	(0,3)
1	y = 1 + 3 = 4	(1,4)
2	y = 2 + 3 = 5	(2,5)
3		
4		
5		
6		
7		

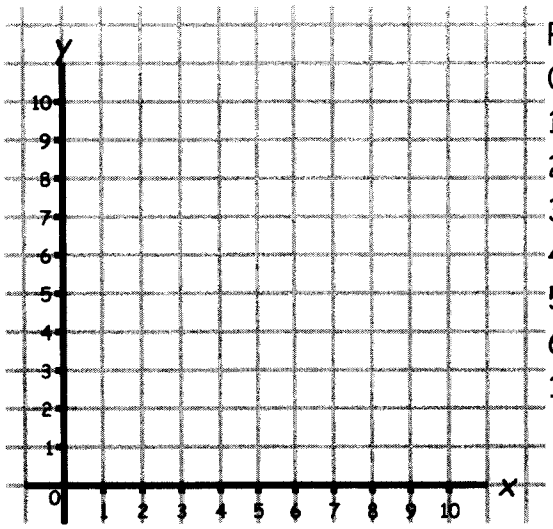
Calculate the gradient of these lines



Which lines have the same gradient?

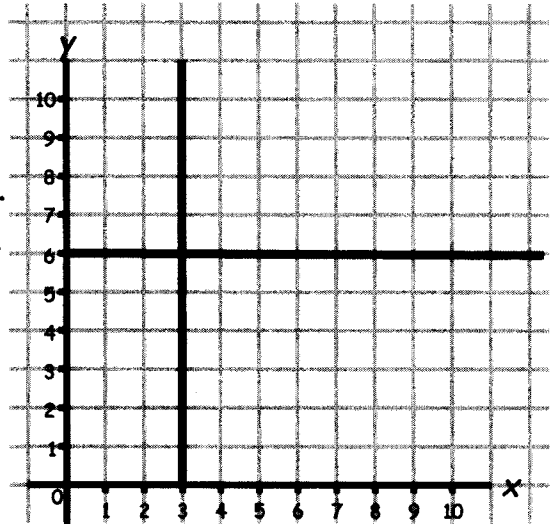
What word could you use to describe lines that have the same gradient?

Horizontal and Vertical Lines

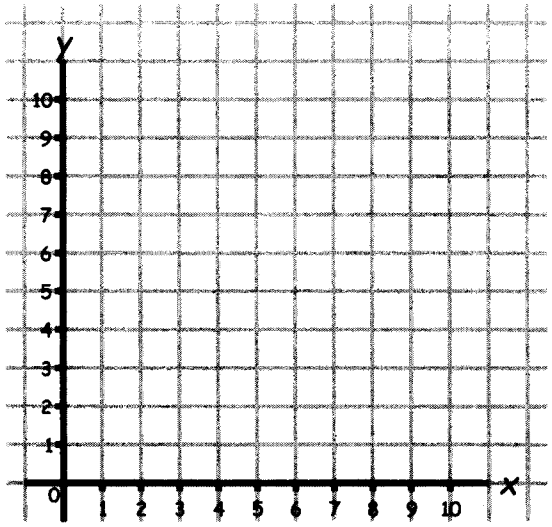


Plot	Plot
0,7	2,0
1,7	2,1
2,7	2,2
3,7	2,3
4,7	2,4
5,7	2,5
6,7	2,6
10,7	2,7
	2,10

Find the equation of the line.
Vertical and horizontal lines.



Diagonal line, positive gradient



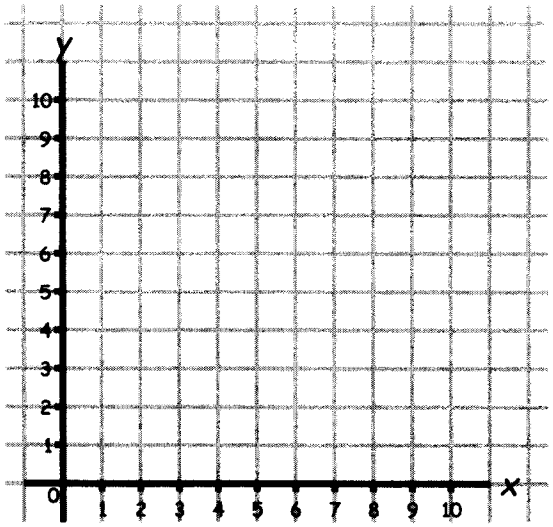
Draw $y=2x$

x	0	1	2	3	4	5
y						

Draw $y=2x+4$

x	0	1	2	3
y				

Diagonal line, negative gradient



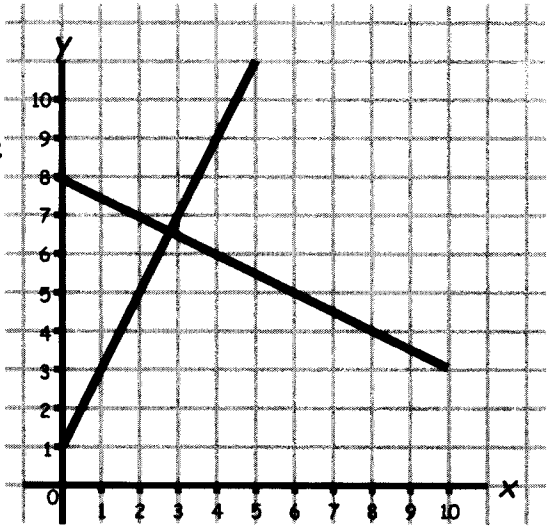
Draw $y=8-x$

x	0	1	2	3	4	5	6	7	8
y									

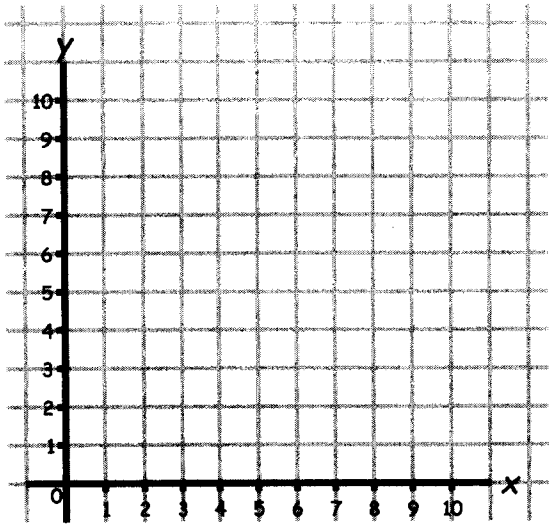
Draw $y= -x+5$

x	0	1	2	3	4	5
y						

Find the equation of the line.
Diagonal lines.



1



Draw the lines

x = 2

x = 7

y = 3

y = 8

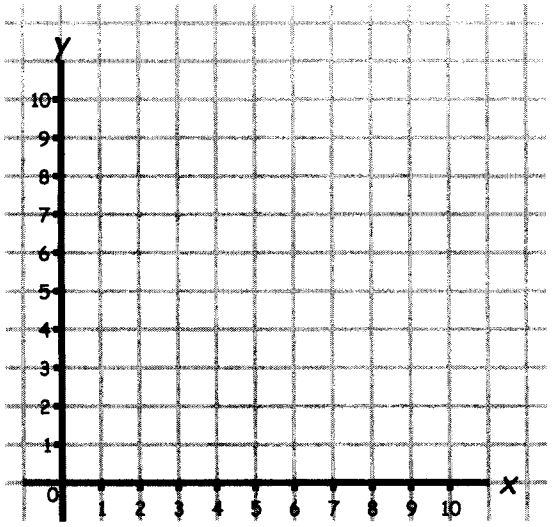
Name of the shape

Coordinates of the corners

(___ , ___) (___ , ___)

(___ , ___) (___ , ___)

2



Draw the lines

x = 7

y = 2

y = x + 1

x	0	1	2	3	4	5	6	7	8	9
y										

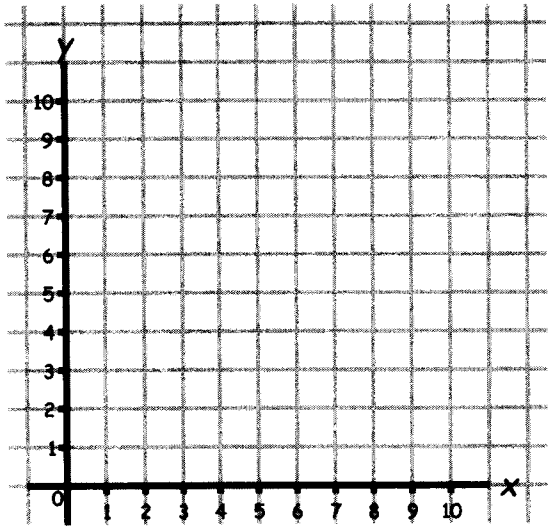
Name of the shape

Coordinates of the corners

(___ , ___) (___ , ___)

(___ , ___)

3



Draw the lines

y = 4

y = 8

y = 2x

x	0	1	2	3	4	5
y						

y = 2x + 4

x	0	1	2	3
y				

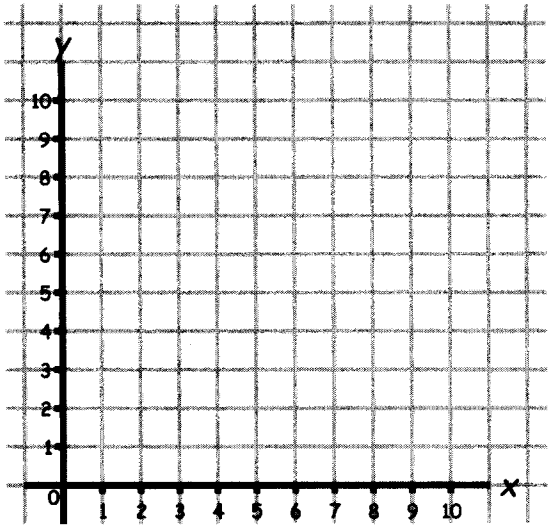
Name of the shape

Coordinates of the corners

(___ , ___) (___ , ___)

(___ , ___) (___ , ___)

4



Draw the lines

x = 4

y = 2x + 2

x	0	1	2	3	4
y					

y = x + 2

x	0	1	2	3	4	5	6	7	8
y									

Name of the shape

Coordinates of the corners

(___ , ___) (___ , ___)

(___ , ___)

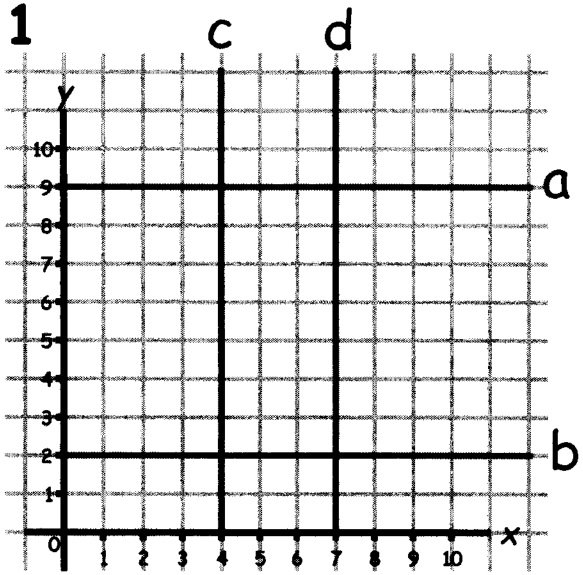
vertical lines x = a number

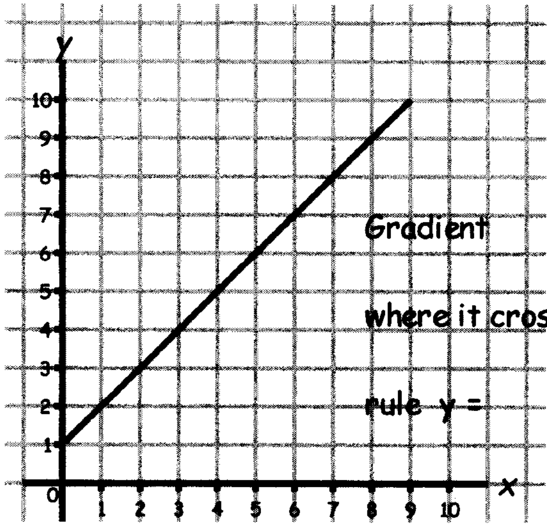
horizontal lines y = a number

Diagonal lines

y = gradient times x + where it crosses the y-axis

1

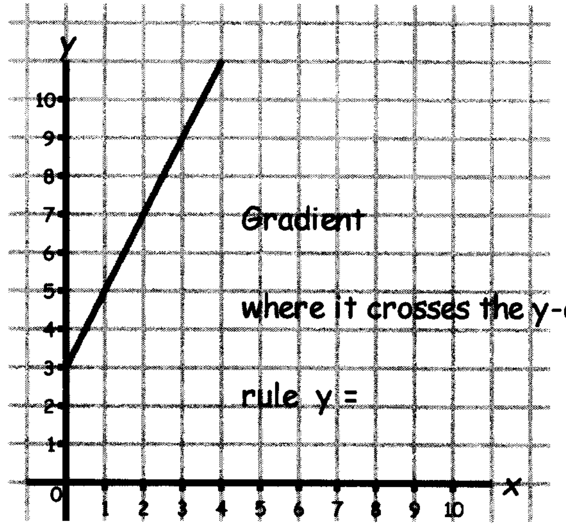




Gradient

where it crosses the y-axis

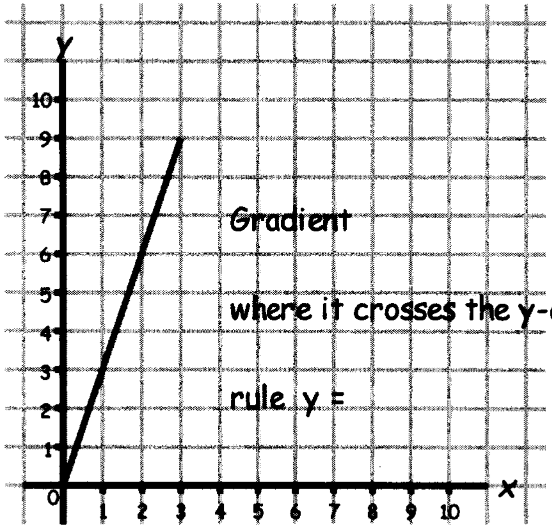
rule y =



Gradient

where it crosses the y-axis

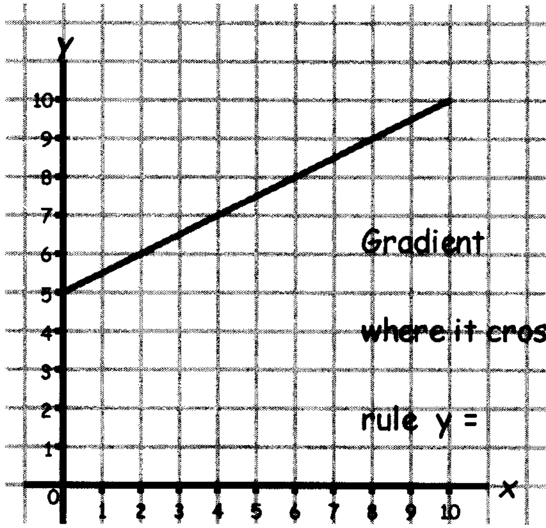
rule y =



Gradient

where it crosses the y-axis

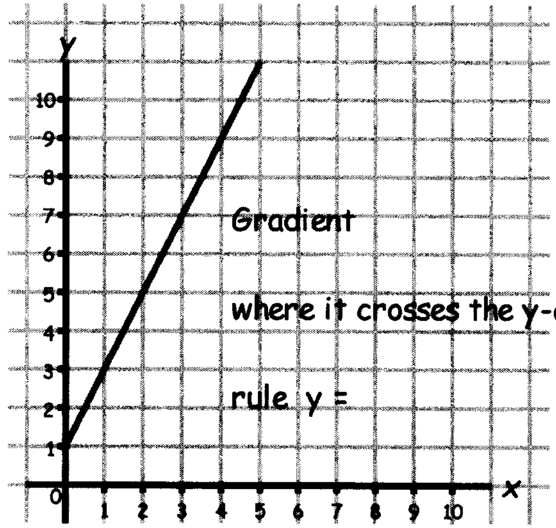
rule y =



Gradient

where it crosses the y-axis

rule y =

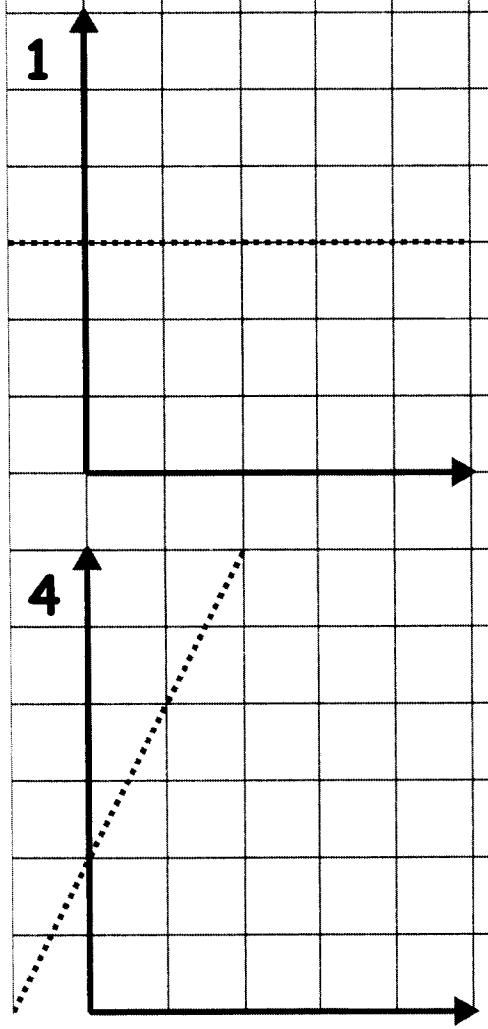


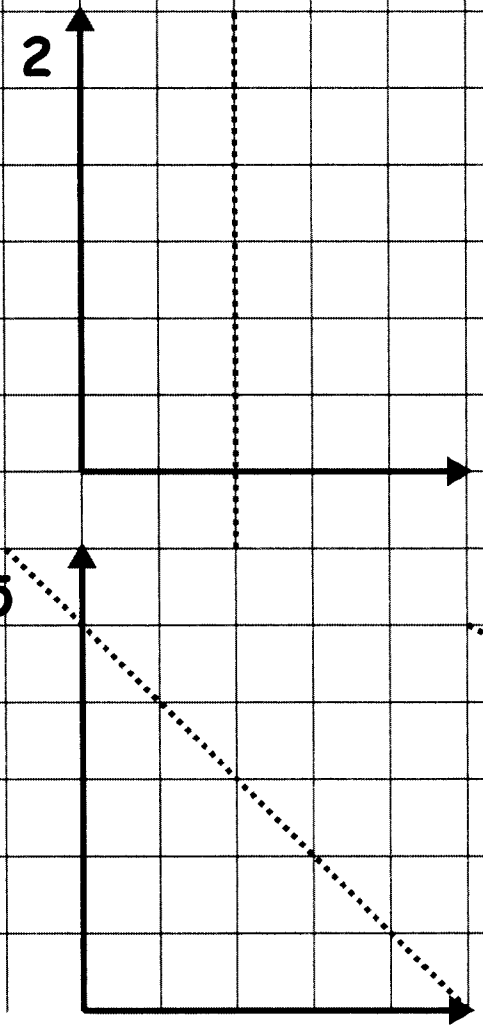
Gradient

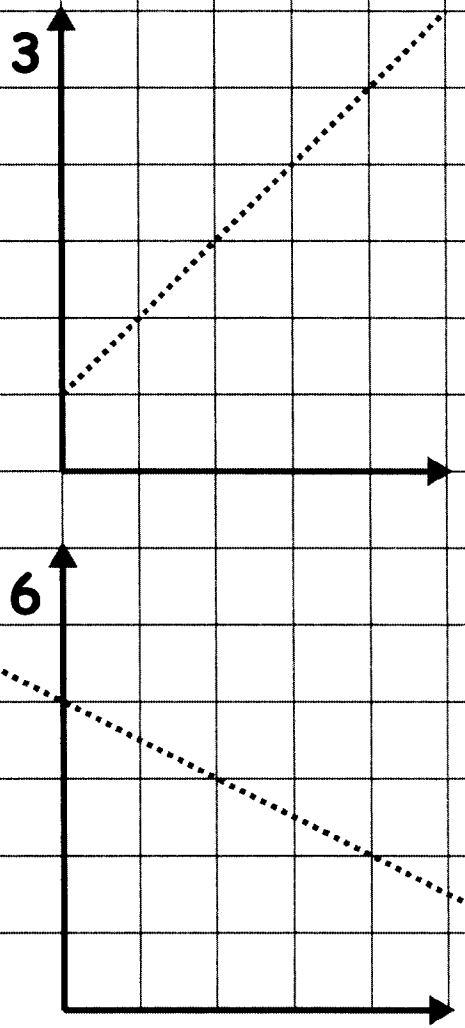
where it crosses the y-axis

rule y =

Find the equation of the dotted line for each question







The general equation of a straight line

y = **gradient** times x + **where graph crosses the y axis**

(y - intercept)

gradient y intercept

1) $y = 2x + 1$

2) $y = 5x - 3$

3) $y = 7x - 1$

4) $y = 4 + 3x$

5) $y = -2x - 6$

gradient y intercept

6) $2y = 2x + 4$

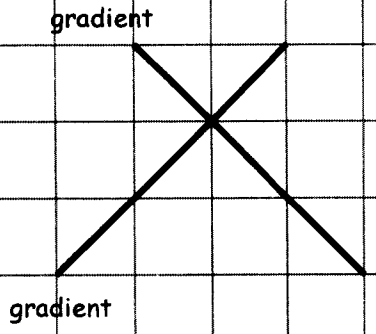
7) $y + x = 3$

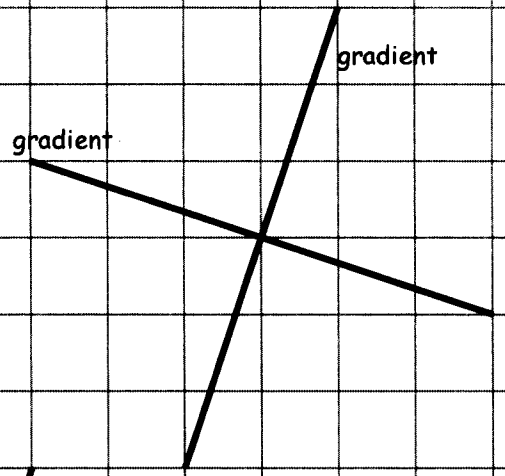
8) $2x - 2y = 5$

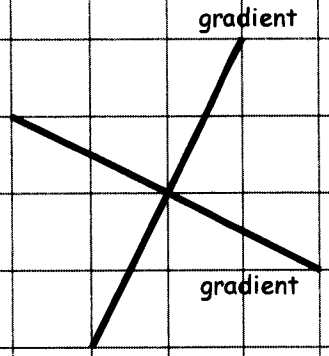
9) $3x + 4y = 8$

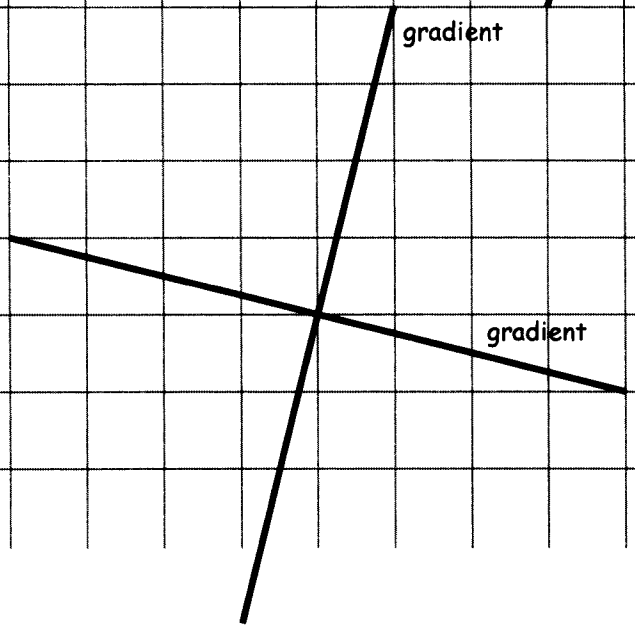
10) $8 = 2x - y$

Gradients of perpendicular lines



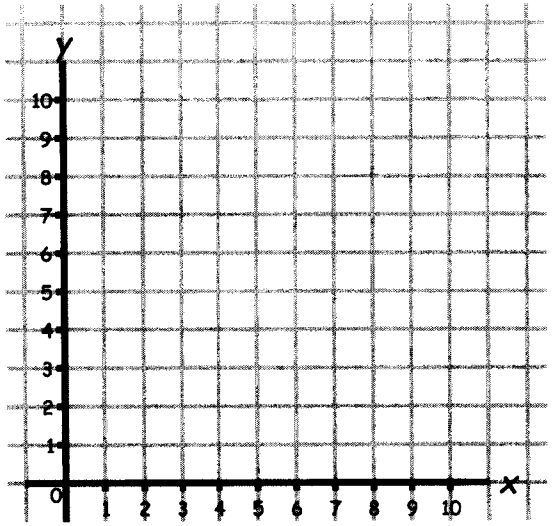






If two lines are perpendicular then when

1



Draw the lines

$y = 3$

$x = 4$

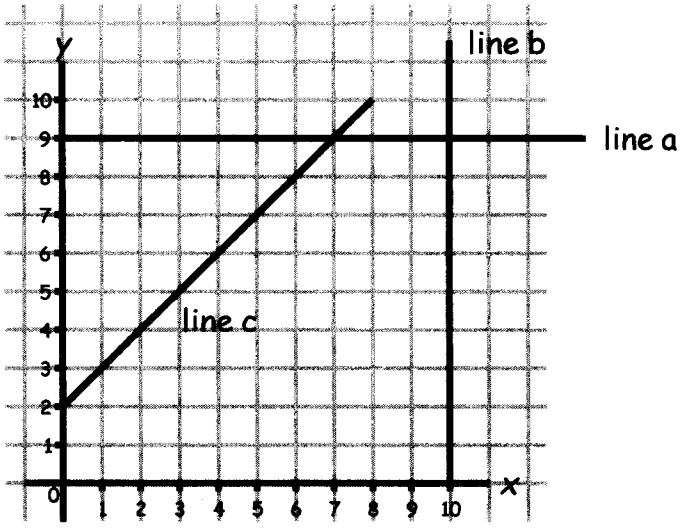
$y = 2x + 1$

x	0	1	2	3	4
y					

2 What is the gradient of the lines

a) $y = 3$ b) $x = 4$ c) $y = 2x + 1$

3

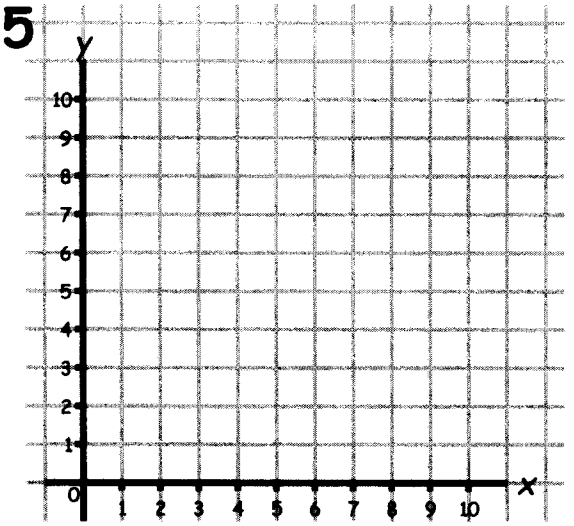


Write down the rules for lines a, b and c.

4 On the grid, draw and label lines with these gradients.

a) 2 b) $\frac{1}{2}$ c) -1 d) -3 e) $-\frac{1}{2}$

5



Plot the points (1,4) and (3,10). Join them a straight line. Find the rule for this line.

6

A $y = 2x + 1$
B $y = 4x + 1$
C $y = 2x - 3$
D $y = -0.5x$

Choosing from the graphs A to D, which graphs will

a) be parallel
b) cross the y-axis at the same point
c) be perpendicular?