

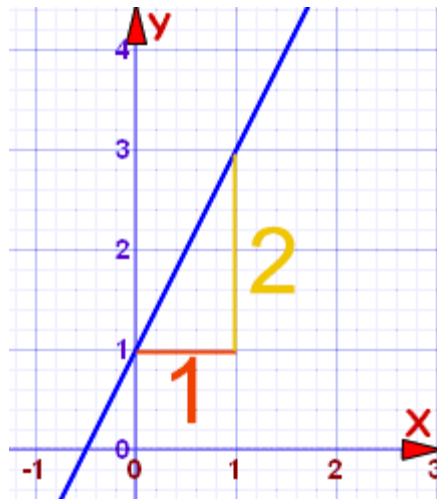
Straight Line Challenges

e.g. $y = 2x + 1$

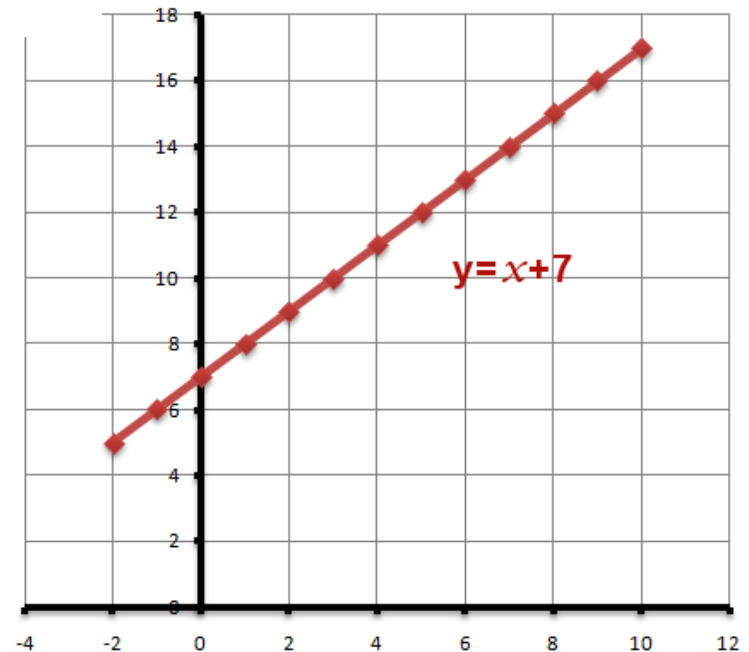
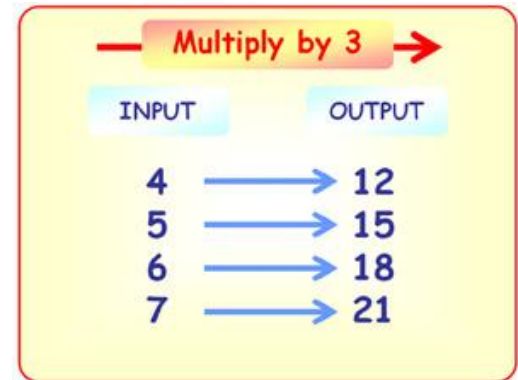
x	$2x + 1$	y
-2	$2(-2) + 1$	-3
-1	$2(-1) + 1$	-1
0	$2(0) + 1$	1
1	$2(1) + 1$	3
2	$2(2) + 1$	5

Choose values for x.

Calculated y values



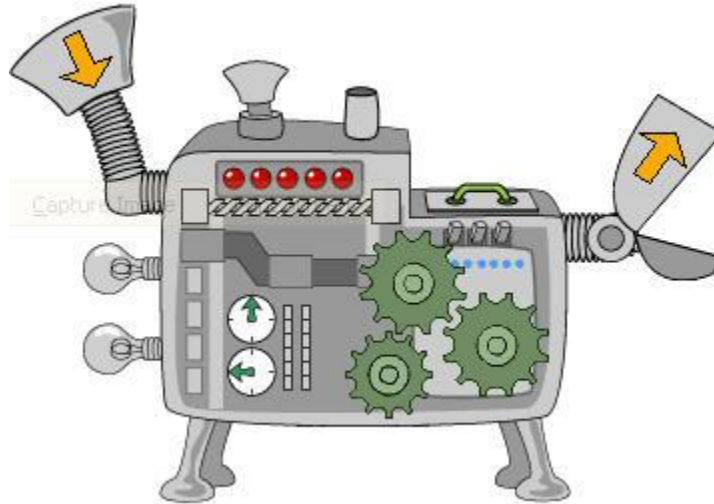
The points to plot are:
 (-2,-3) (-1,-1) (0,1)
 (1,3) (2,5)



Challenge 1

What does this machine do to each number?

1
2
3
4
5

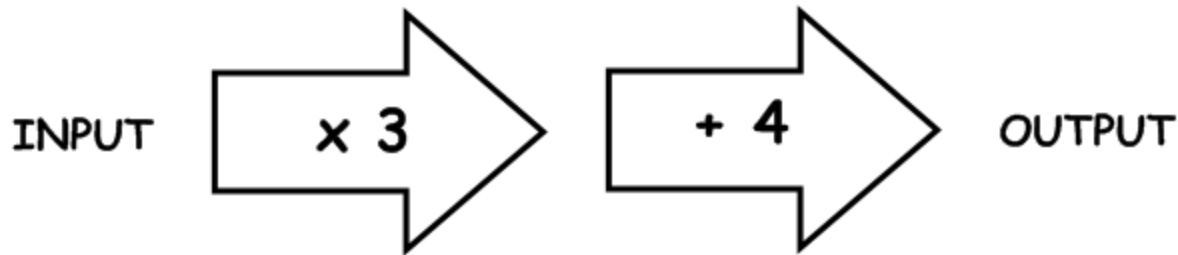


3
4
5
6
7

Challenge 2

Put the numbers in and write down the answers which come out.

1
2
3
4
5



?
?
?
?
?

Challenge 3

Complete the tables for each of the given equations.

$$y = 3x$$

x	x^3	y
1	x^3	
2	x^3	
3	x^3	
4	x^3	

$$y = 2x + 4$$

x	x^2+4	y
1	x^2+4	
2	x^2+4	
3	x^2+4	
4	x^2+4	

$$y = 3x - 4$$

x	x^3-4	y
1	x^3-4	
2	x^3-4	
3	x^3-4	
4	x^3-4	

Challenge 4

Plot these points to draw the 3 Graphs

$$y = x + 3$$

x	y
1	4
2	5
3	6
4	7

$$y = 2x - 1$$

x	y
1	1
2	3
3	5
4	7

$$y = 3x + 1$$

x	y
1	4
2	7
3	10
4	13

Challenge 5

Complete the tables for each of the given equations and draw the graphs

$$y = 2x$$

x	y
1	
2	
3	
4	

$$y = 2x + 4$$

x	y
1	
2	
3	
4	

$$y = 3x - 4$$

x	y
1	
2	
3	
4	

Challenge 6

Complete the tables for each of the given equations and draw the graphs

$$x + y = 8$$

x	y
1	
4	
7	
8	

$$y = 2x - 4$$

x	y
1	
2	
6	
	12

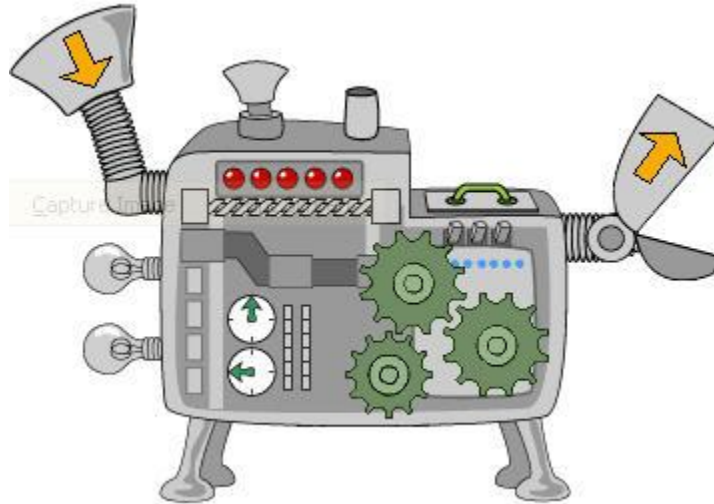
$$y = x - 4$$

x	y
	-4
3	
7	
	6

Challenge 7

What does this machine do to each number?

- 1
- 2
- 3
- 4
- 5



- 6
- 8
- 10
- 12
- 14

Challenge 8

Write down 3 equations which go through each of the points

Q1. $(3, 3)$

Q2. $(4, 1)$

Q3. $(3, 5)$

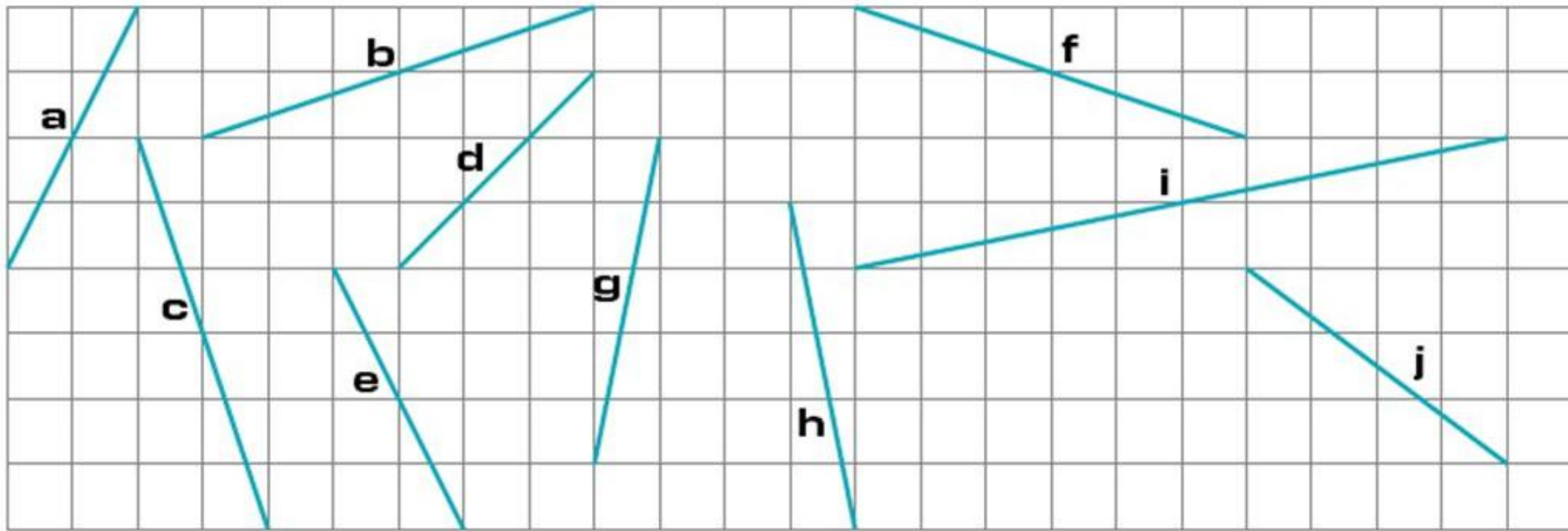
Challenge 9

Write down 2 solutions to each of these problems

- Q1. A line parallel to $y = 2x + 4$
- Q2. A line steeper than $y = 3x - 4$
- Q3. A line that crosses the y axis at 3

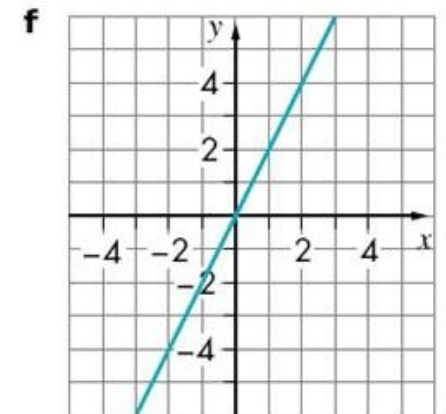
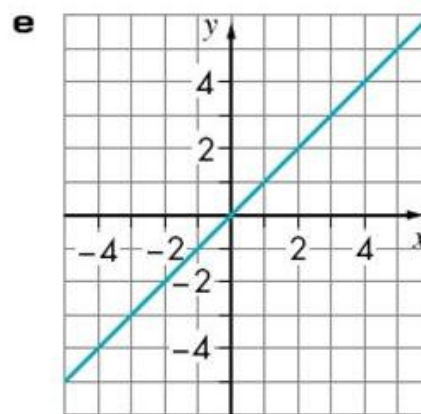
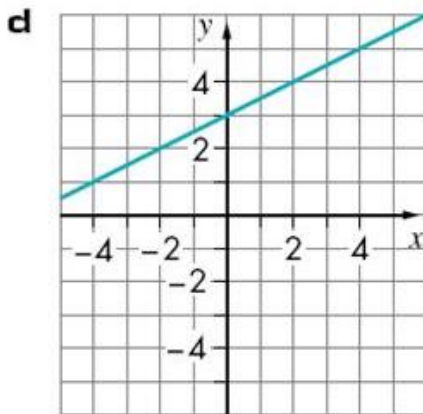
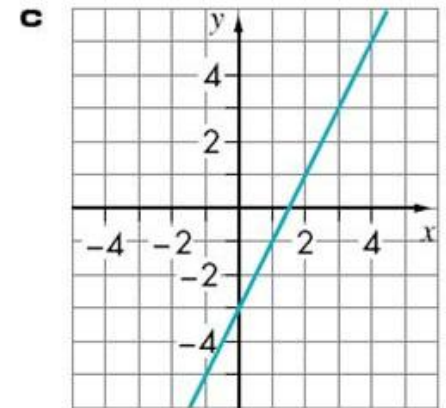
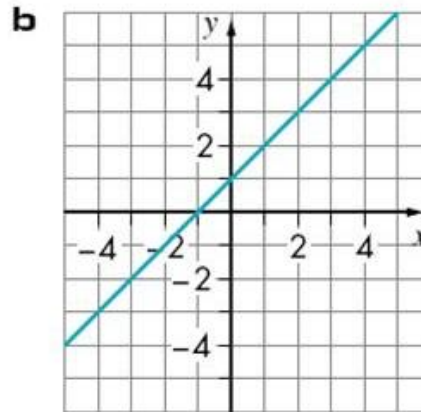
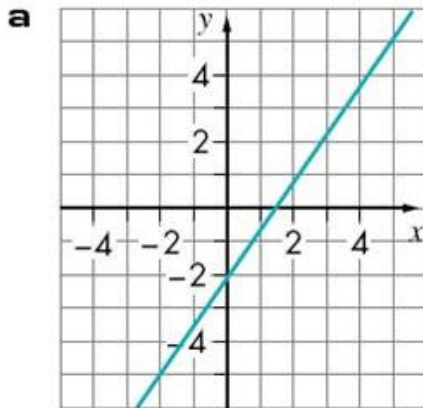
Challenge 10

Find the gradients of each of these lines.



Challenge 11

Find the equation of each of these 5 lines.



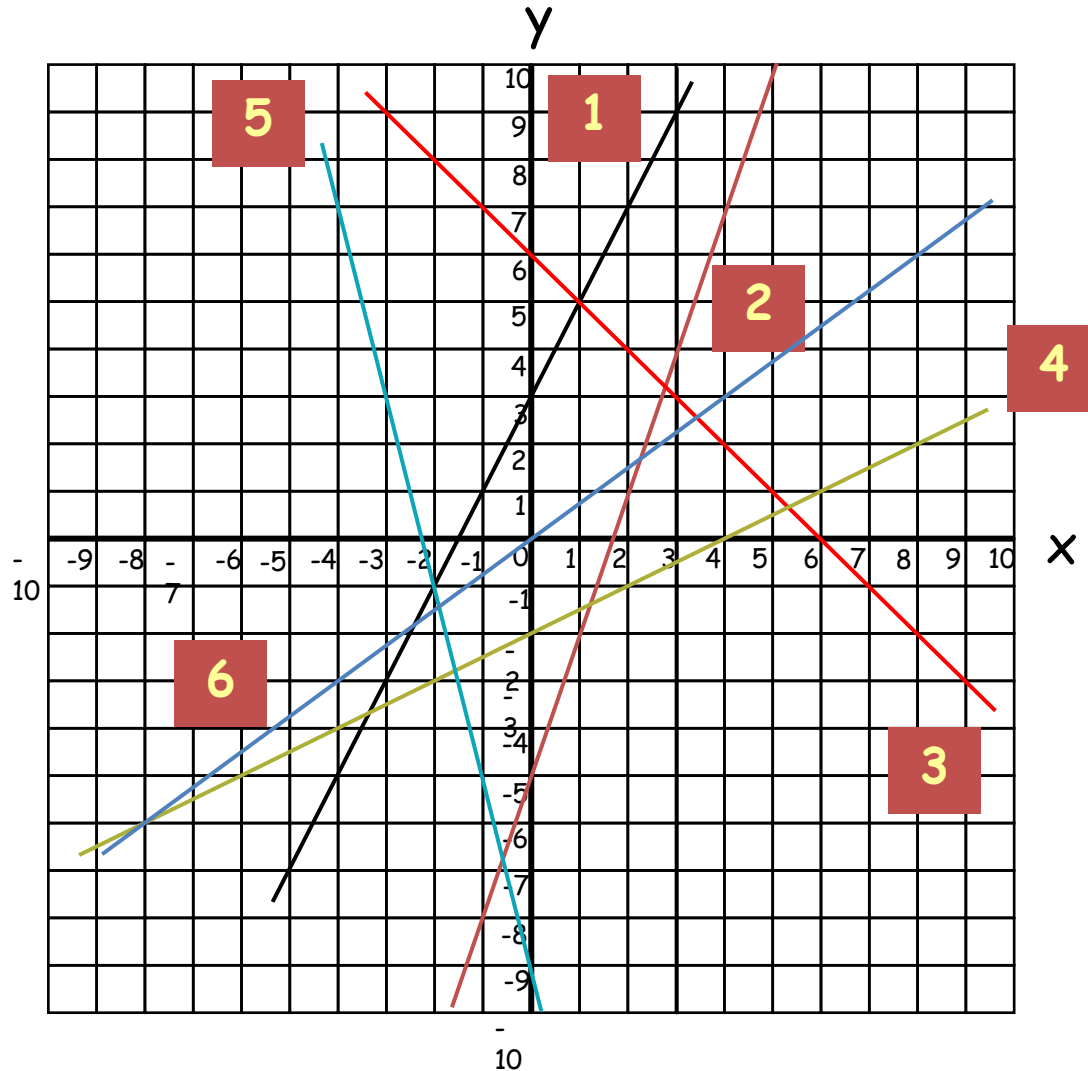
Challenge 12

Find the equation of the 5 straight lines below. You are given 2 points on each line.

Q1	(1,4)	(3,10)
Q2	(0,3)	(4,11)
Q3	(2,6)	(5,18)
Q4	(1,7)	(4,10)
Q5	(4,6)	(7,12)

Challenge 13

Find the equation of each of these 5 lines.



Challenge 14

Find the length of the line which joins each of these pairs of points.

Q1	(1,4)	(3,10)
Q2	(0,3)	(4,11)
Q3	(2,6)	(5,18)
Q4	(1,7)	(4,10)
Q5	(4,6)	(7,12)