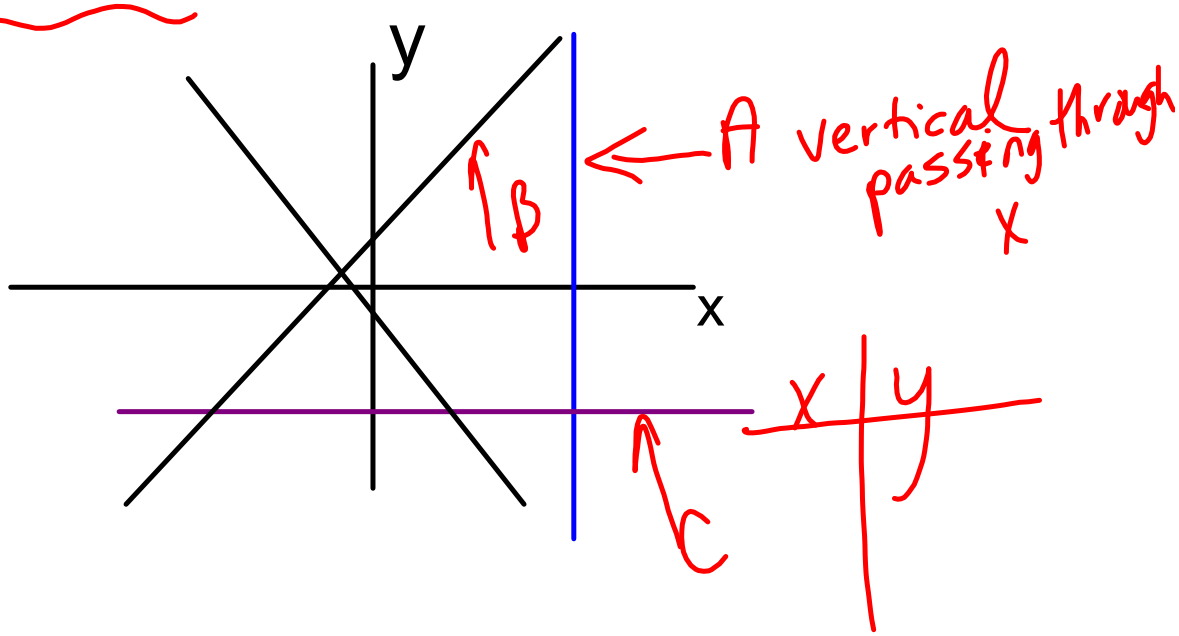
Unit 4
Linear Relations



The pattern in this table continues. Determine the expression that relates the number of triangles to the fig number.

Figure, f	1	2	3	4	5
Number of Triangles, t	2	4	6	8	10

f	t
1	2 (+2)
2	4 (+2)
3	6 (+2)
4	8
5	10

$t = 2f$

Complete the table of values.

$y = 9 - 5x$

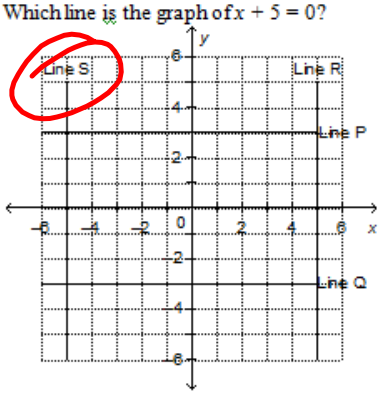
x	2	4	6	8
y	-1	-11	-21	-31

$x = 2$
$y = 9 - 5x$
$y = 9 - 5(2)$
$9 - 10$
-1

$x = 4$
$y = 9 - 5x$
$y = 9 - 5(4)$
$y = 9 - 20$
$y = -11$

$x = 6$
$y = 9 - 5x$
$y = 9 - 5(6)$
$y = 9 - 30$
$y = -21$

3. Which line is the graph of $x + 5 = 0$?



$x+5=0$

$x+5-5=0-5$

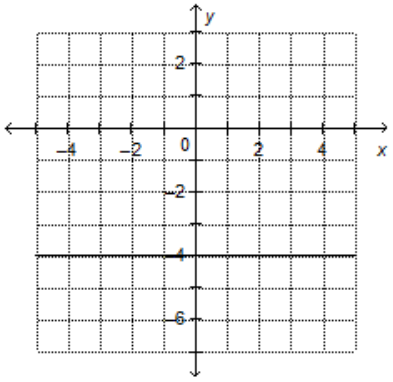
$x = -5$

"x" only → vertical line

"y" only → horizontal line

x and y → oblique line → table of value

4. Write an equation that describes the line.



$y = -4$

5. Which equation describes a horizontal line?

i) $x + 9 = 2$

~~ii) $y + x = 9$~~

~~iii) $x = 0$~~

iv) $y + 2 = 9$

$y + 2 = 9$

6. Which equation describes the graph?

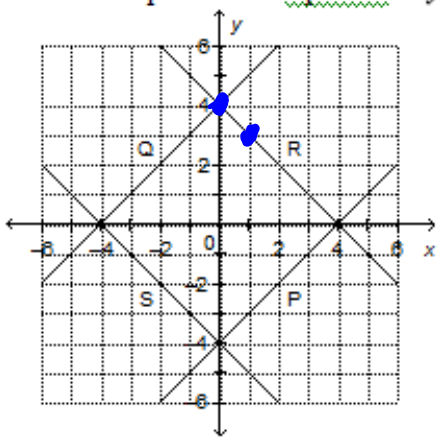
i) $x + y = 3$
ii) $x - y = 3$
iii) $y - x = 3$
iv) $x + y = -3$

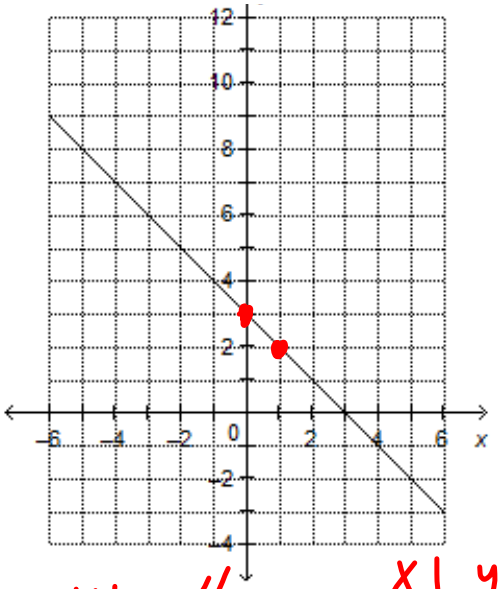
$x+y=3$ $x=0$ $0+y=3$ $y=3$

x	y
0	3
1	2

$x+y=3$ $x=1$ $1+y=3$ $y=2$

7. Which line represents the equation $x + y = 4$?





$x+y=4$

$x=0$ $0+y=4$ $y=4$

$x=1$ $1+y=4$ $y=3$

x	y
0	4
1	3

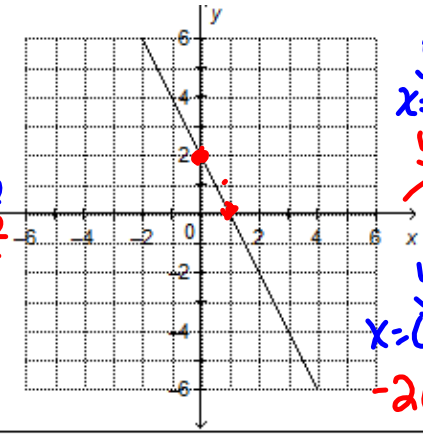
8. Which equation describes the graph below?

~~i) $y = 2x$~~

~~ii) $y = 2x + 2$~~

iii) $y = -x + 2$

iv) $y = -2x + 2$



$y = 2x$

$x = 0$

$y = 2(0)$

$y = 0$

x	y
0	0
1	

$y = 2x + 2$

$x = 0$

$y = 2(0) + 2$

$y = 2$

$y = 2(1) + 2$

$y = 4$

x	y
0	2
1	4

$y = -x + 2$

$x = 0$

$y = 2$

$y = -1 + 2$

$y = 1$

x	y
0	2
1	1

$y = -2x + 2$

$x = 0$

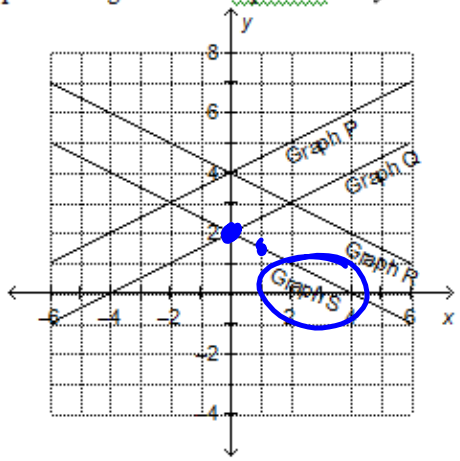
$-2(0) + 2$

$-2(1) + 2$

0

x	y
0	2
1	0

9. Which graph on this grid has the equation $x + 2y = 4$?



$x = 0$

$x + 2y = 4$

$0 + 2y = 4$

$\frac{2y}{2} = \frac{4}{2}$

$y = 2$

$x = 1$

$x + 2y = 4$

$1 + 2y = 4$

$-1 \quad -1$

$2y = 4 - 1$

$\frac{2y}{2} = \frac{3}{2}$

$y = 1.5$

x	y
0	2
1	1.5

10. Shirley has $540 in her bank account. She withdraws $35 each week to cover her expenses.

A)Write an equation that relates the amount of money in her account, A dollars, after n weeks.

A = 540 + -35n

A = 540 - 35n

A: -35n + 540

b) Determine the amount of money in Shirley's account after 8 weeks.

A: 540 - 35(8)
= 540 - 280
= $260

540
- 35
- 35
- 35
⋮

11. Dorina is having a party. She estimates that she will need 5 sandwiches for each guest, and 12 extra sandwiches for unexpected guests.

a) Write an equation that relates the total number of sandwiches, T, to the number of guests, p.

T = 5p + 12

T = 12 + 5p

b) How many sandwiches will Dorina need for 16 guests?

T = 5(16) + 12
= 80 + 12
= 92

12. This is a partially completed table of values for a linear relation. Determine the missing values of y.

x	1	3	5	7	9
y	6	17	28	39	50

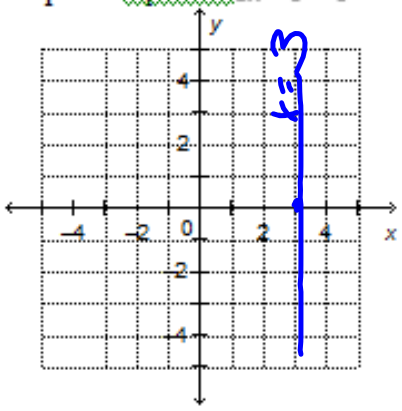
+11

b) ~~Write an~~ equation that represents the linear relation.

describe

As "x" increases by 2, "y" increases by 11

13. Graph the equation $2x - 3 = 3$.



$2x - 3 = 3$

$2x - 3 + 3 = 3 + 3$

$\frac{2x}{2} = \frac{6}{2}$

$x = 3$

Match each equation with a graph on the grid below.

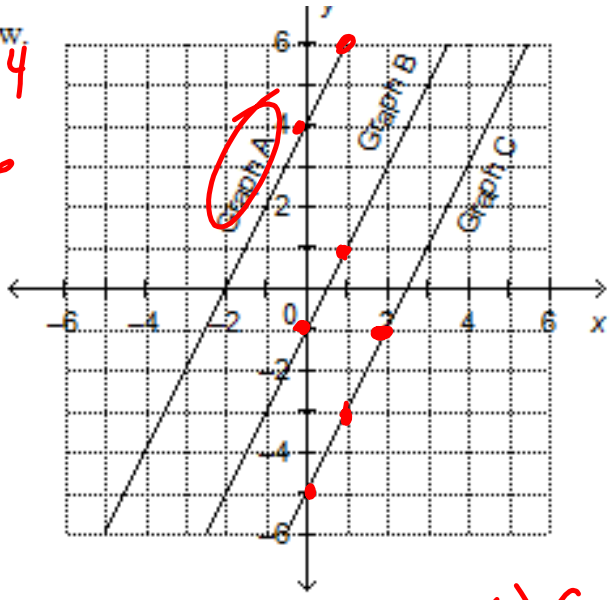
i) $y = 2x - 1$ B

ii) $y = 2x + 4$ A

iii) $y = 2x - 5$ C

$y = 2(0) + 4 = y = 4$

$y = 2(1) + 4 = 6$



$y = 2x - 1$

x	y
0	-1
1	1

$y = 2x + 4$

x	y
0	4
1	6

$y = 2(0) - 1$

$y = -1$

$y = 2(1) - 1$

$y = 2 - 1$

1

$y = 2x - 5$

x	y
0	-5
1	-3

$y = 2(0) - 5$

$y = -5$

$y = 2(1) - 5$

$y = 2 - 5$

$y = -3$

Attachments

day 4 worksheet.doc