St. Mary's Catholic High School, Muhaisnah

LINE GRAPHS

LO: **To accurately draw linear graphs from a table.**

SUCCESS CRITERIA

All students should be able to construct a line graph given scaled axes.

Most students should be able to construct and interpret a line graph to identify trends over time.

Some students should be able to use a line graph to compare two data sets over time.

Line Graphs

LO: To accurately draw linear graphs from a table.

KEYWORDS

Linear, Axes, coordinate, plane

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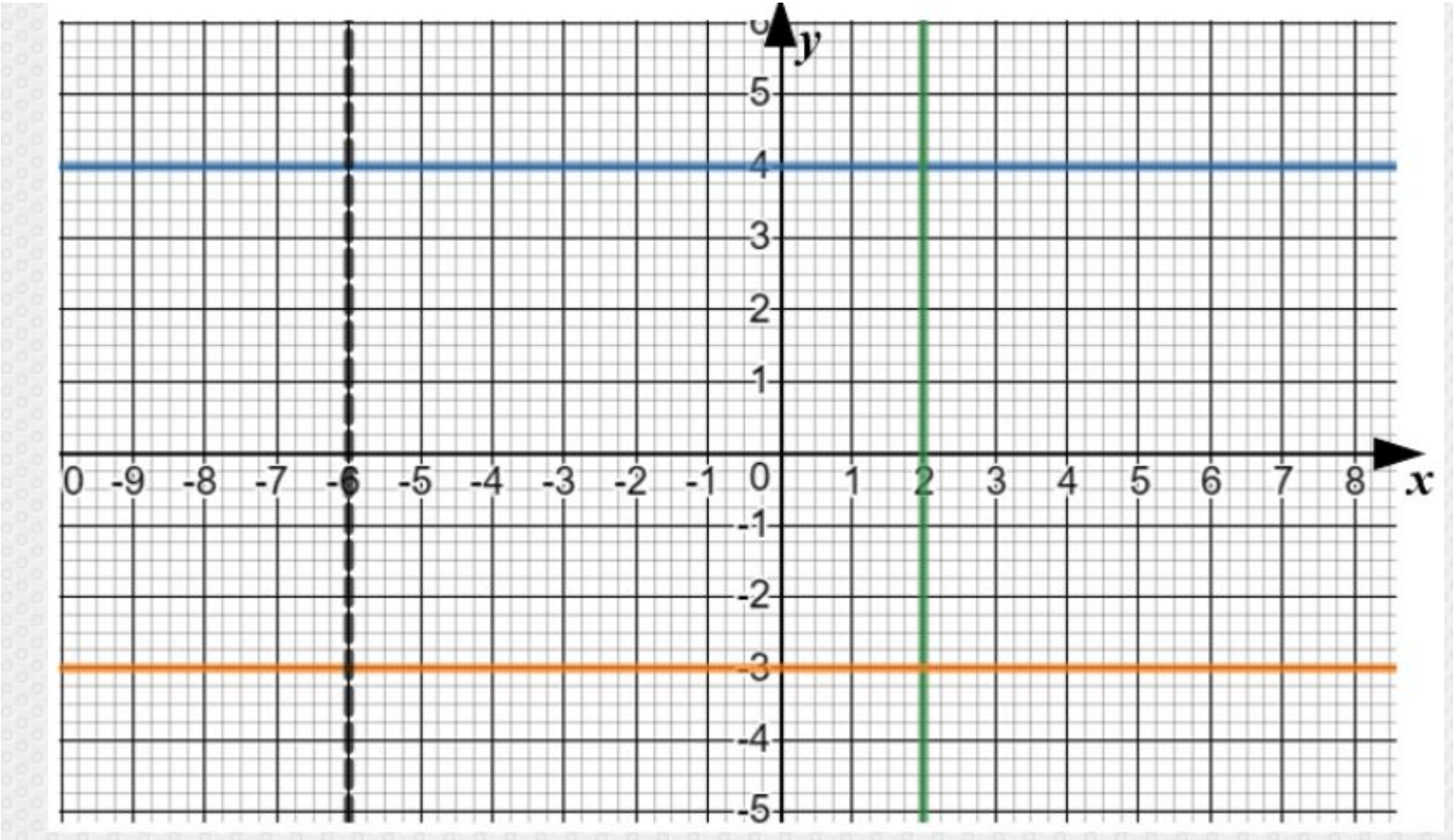
MENTAL MATH

LO: To accurately draw linear graphs from a table.



Write the equation for each of the colored lines.
Blue -
Green -
Orange -
Black -

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STARTER

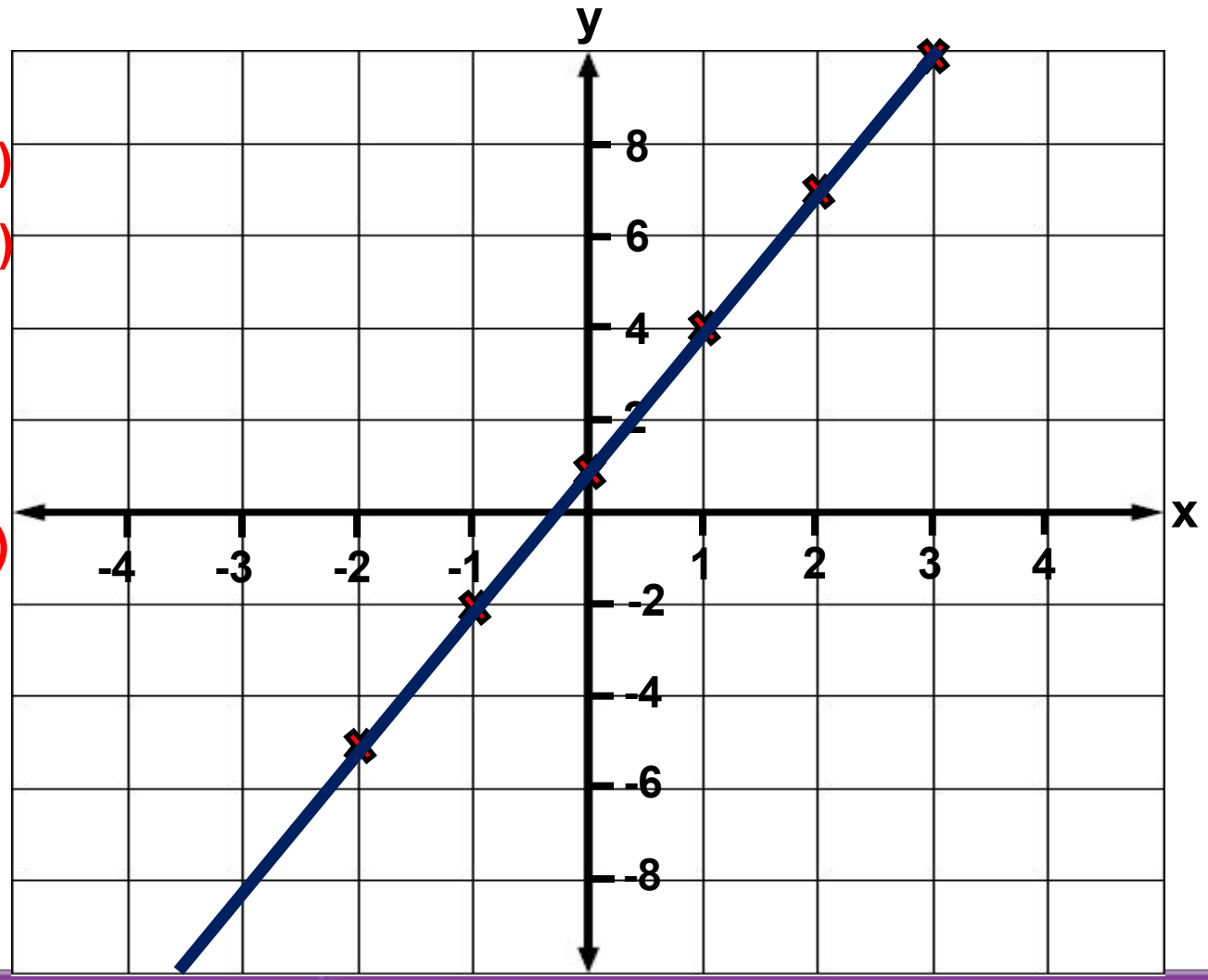
LO: To accurately draw linear graphs from a table.

EXAMPLE

Fill in the table below and draw the graph of y = 3x + 1.

means 3 times x + 1

x	y = 3x + 1	
-2	3 x -2 + 1	(-2, -5)
-1	3 x -1 + 1	(-1, -2)
0	3 x 0 + 1	(0, 1)
1	3 x 1 + 1	(1, 4)
2	3 x 2 + 1	(2, 7)
3	3 x 3 + 1	(3, 10)



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LINE GRAPHS

LO: To accurately draw linear graphs from a table.

EXTENSION

Complete the function table and graph the line for each equation.

1)

$y = \frac{1}{4}x + 2$

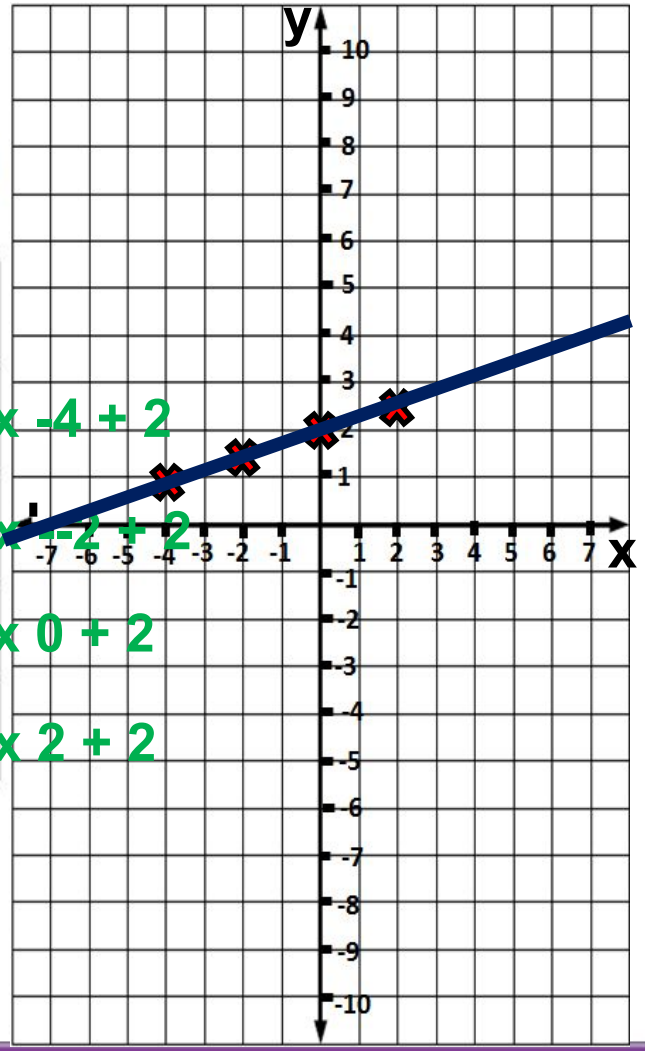
x	y
-4	1
-2	1.5
0	2
2	2.5

0.25 x -4 + 2

0.25 x -2 + 2

0.25 x 0 + 2

0.25 x 2 + 2



2)

$y = \frac{1}{3}x + 5$

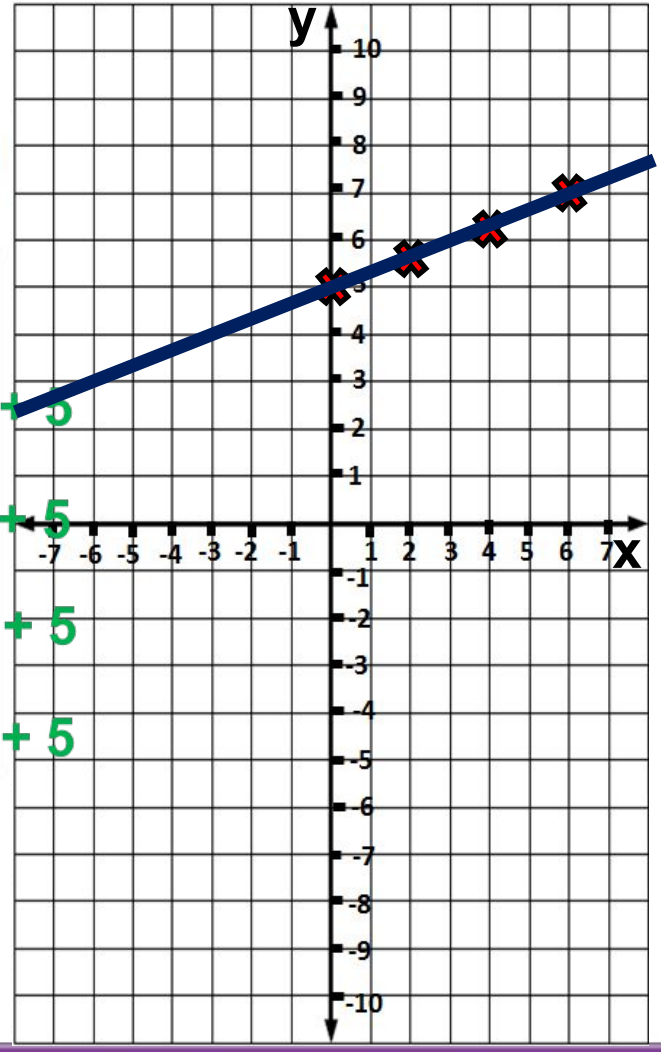
x	y
0	5
2	5 2/3
4	6 1/3
6	7

$\frac{1}{3}$ x 0 + 5

$\frac{1}{3}$ x 2 + 5

$\frac{1}{3}$ x 4 + 5

$\frac{1}{3}$ x 6 + 5



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KEY CONCEPT

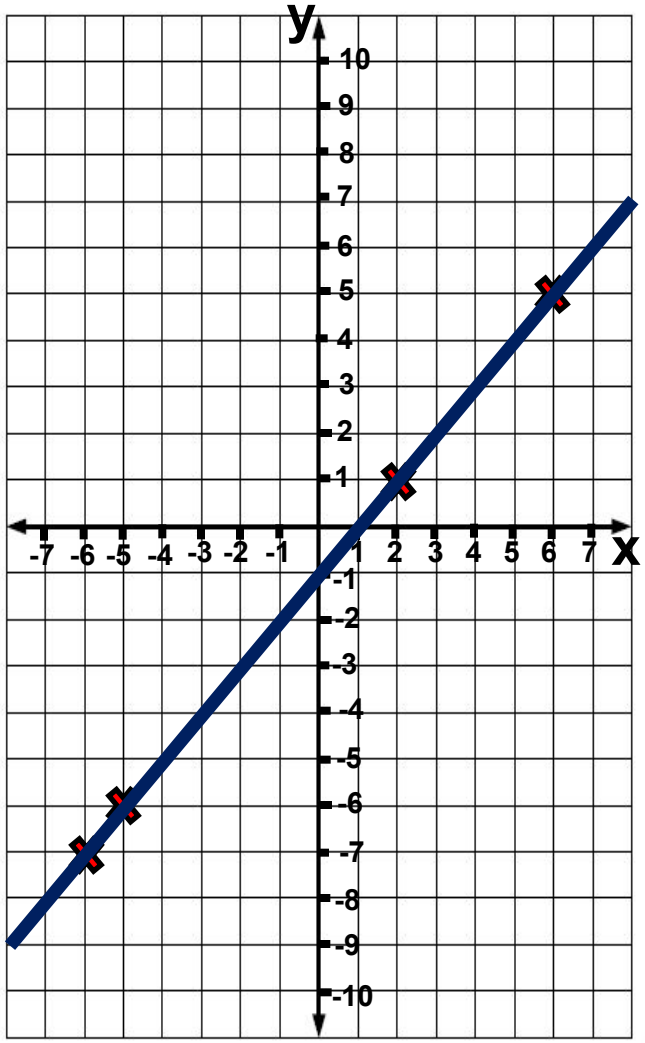
LO: To accurately draw linear graphs from a table.

Complete the function table and graph the line for each equation.

1)

$y = x - 1$

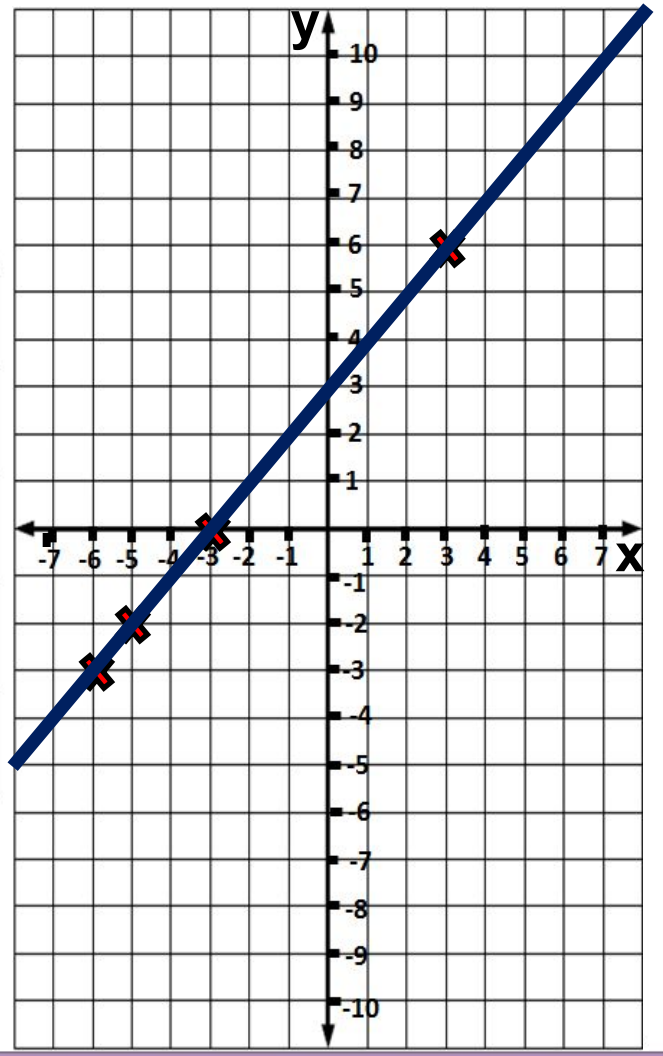
x	y
-6	-6 - 1 = -7
-5	-5 - 1 = -6
2	2 - 1 = 1
6	6 - 1 = 5



2)

$y = x + 3$

x	y
-6	-6 + 3 = -3
-5	-5 + 3 = -2
-3	-3 + 3 = 0
3	3 + 3 = 6



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YOUR TURN

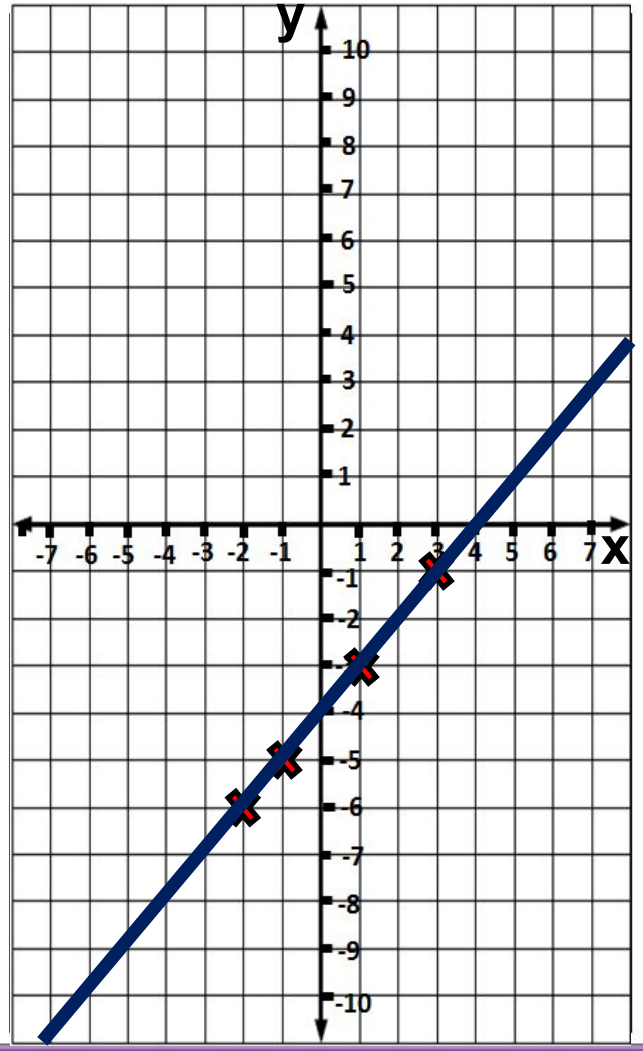
LO: To accurately draw linear graphs from a table.

Complete the function table and graph the line for each equation.

3)

$y = x - 4$

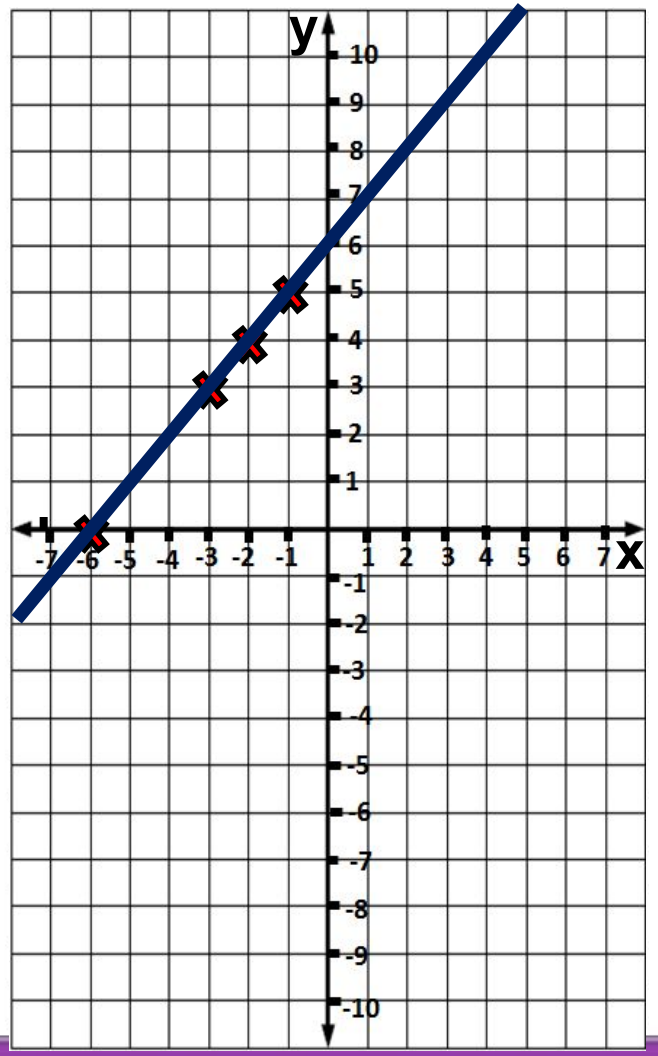
x	y
-2	-2 - 4 = -6
-1	-1 - 4 = -5
1	1 - 4 = -3
3	3 - 4 = -1



4)

$y = x + 6$

x	y
-6	-6 + 6 = 0
-3	-3 + 6 = 3
-2	-2 + 6 = 4
-1	-1 + 6 = 5



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MINI PLENARY

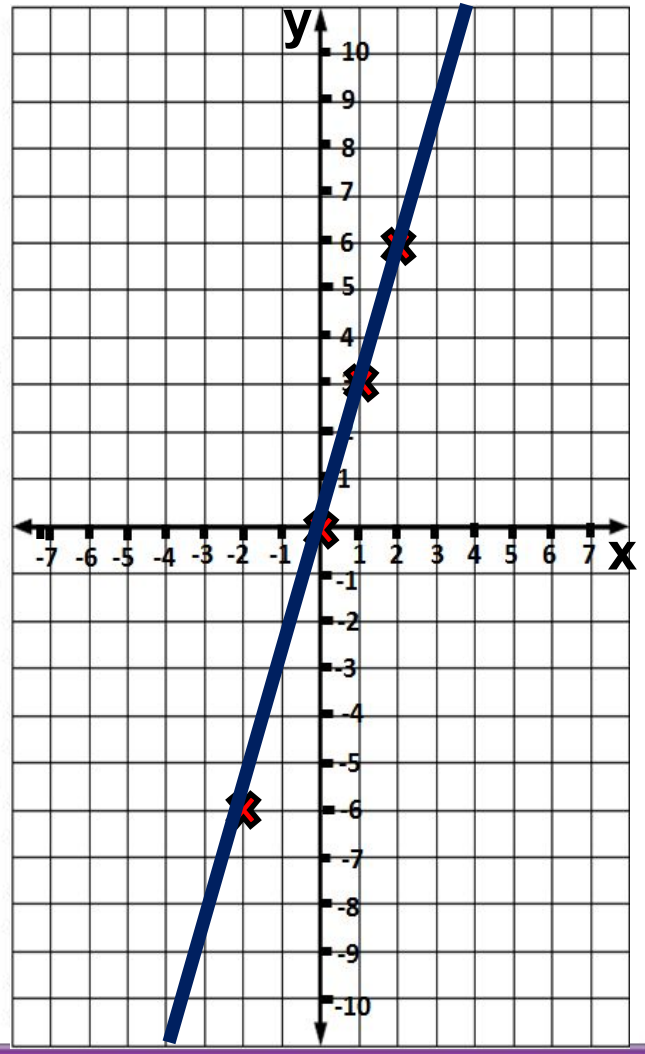
LO: To accurately draw linear graphs from a table.

Complete the function table and graph the line for each equation.

1)

$y = 3x$

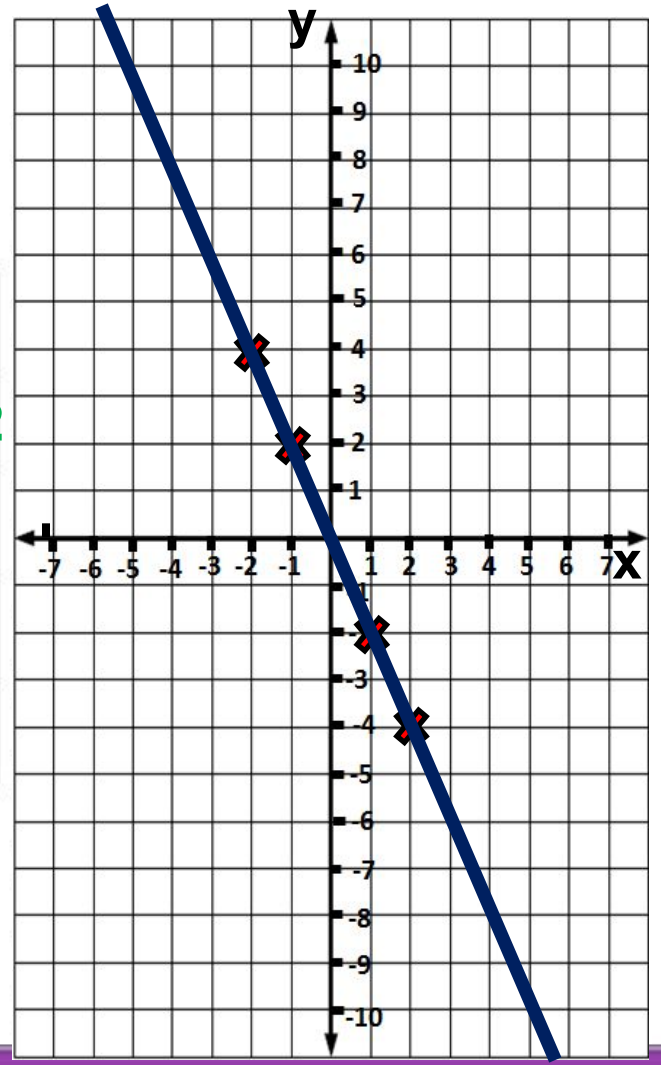
x	y
-2	3 × -2 = -6
0	3 × 0 = 0
1	3 × 1 = 3
2	3 × 2 = 6



2)

$y = -2x$

x	y
-2	-2 × -2 = 4
-1	-2 × -1 = 2
1	-2 × 1 = -2
2	-2 × 2 = -4



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CORE TASK

LO: To accurately draw linear graphs from a table.

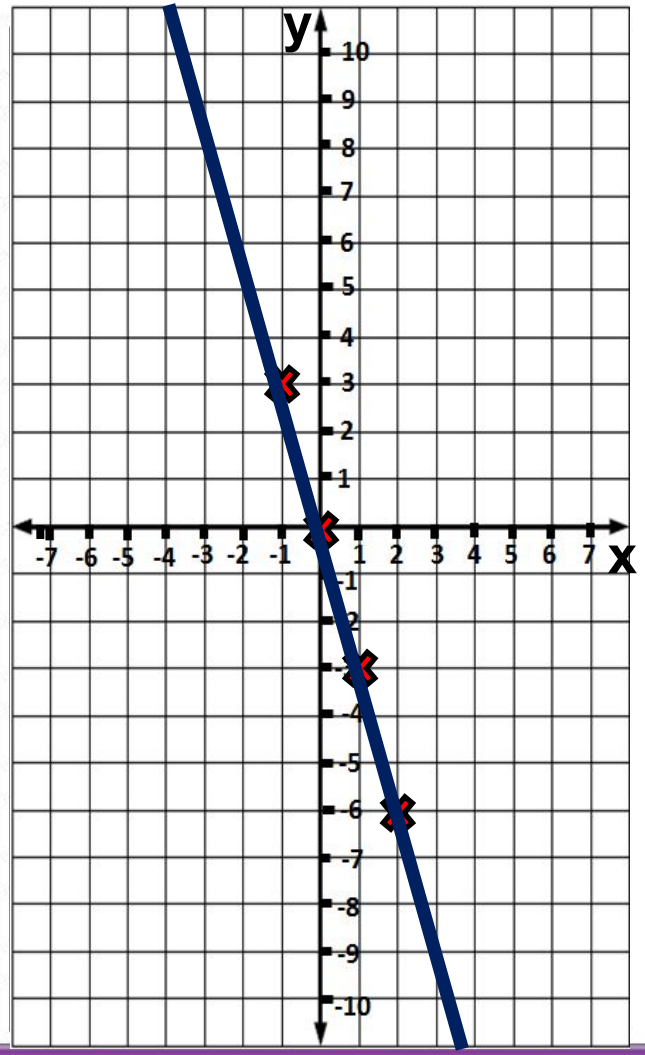
TASK 1

Complete the function table and graph the line for each equation.

1)

$y = -3x$

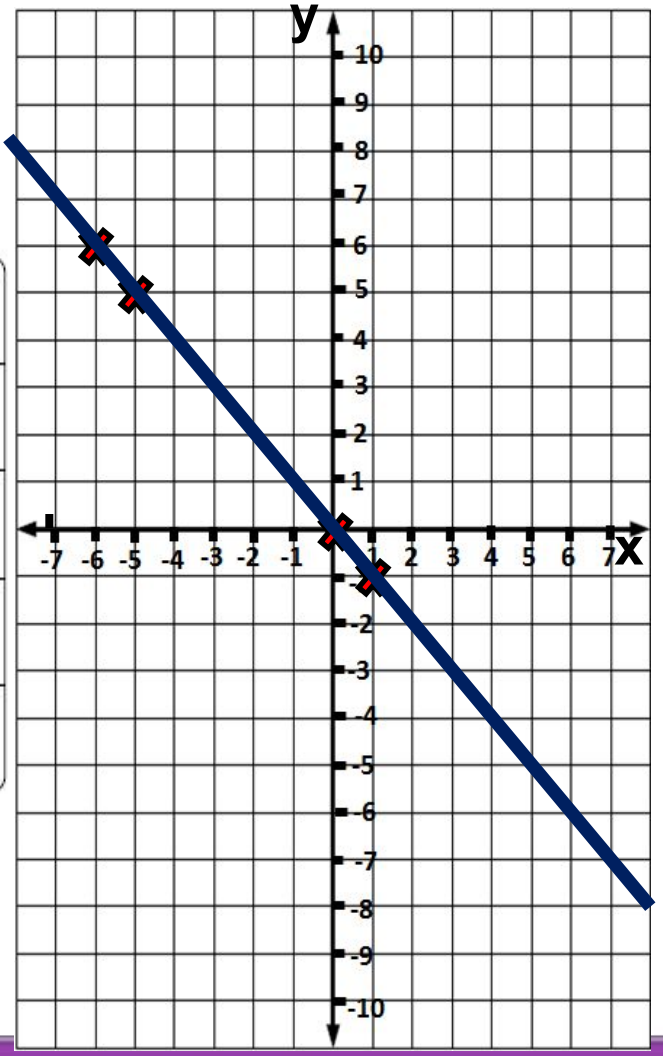
x	y
-1	-3×-1 3
0	-3×0 0
1	-3×1 -3
2	-3×2 -6



2)

$y = -x$

x	y
-6	-6 6
-5	-5 5
0	-0 0
1	-1



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LINE GRAPHS

LO: To accurately draw linear graphs from a table.

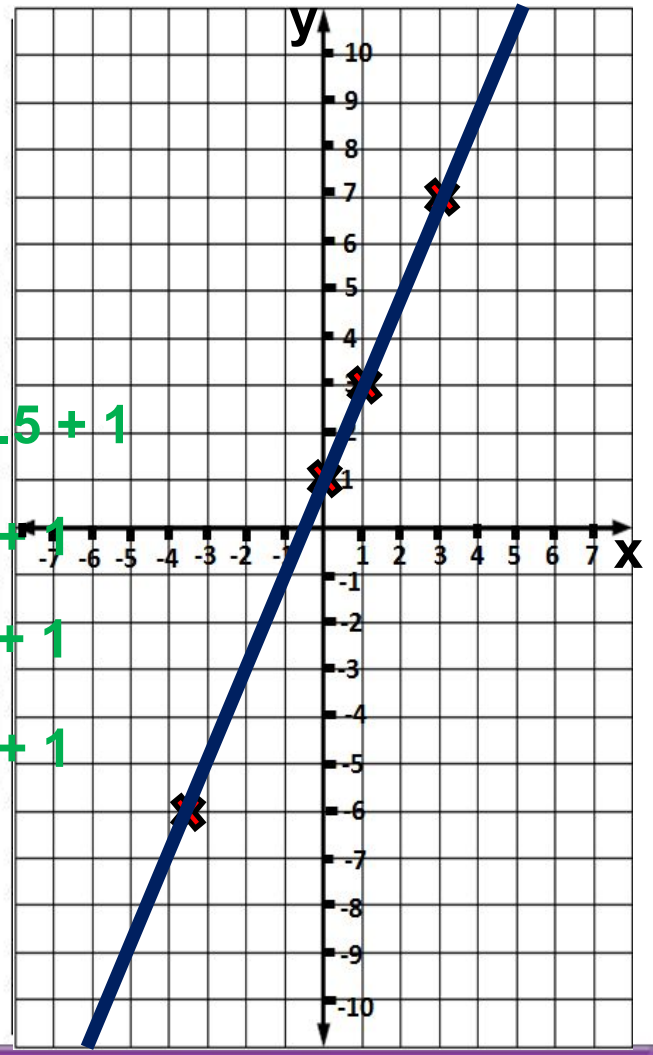
TASK 2

Complete the function table and graph the line for each equation.

1)

$y = 2x + 1$

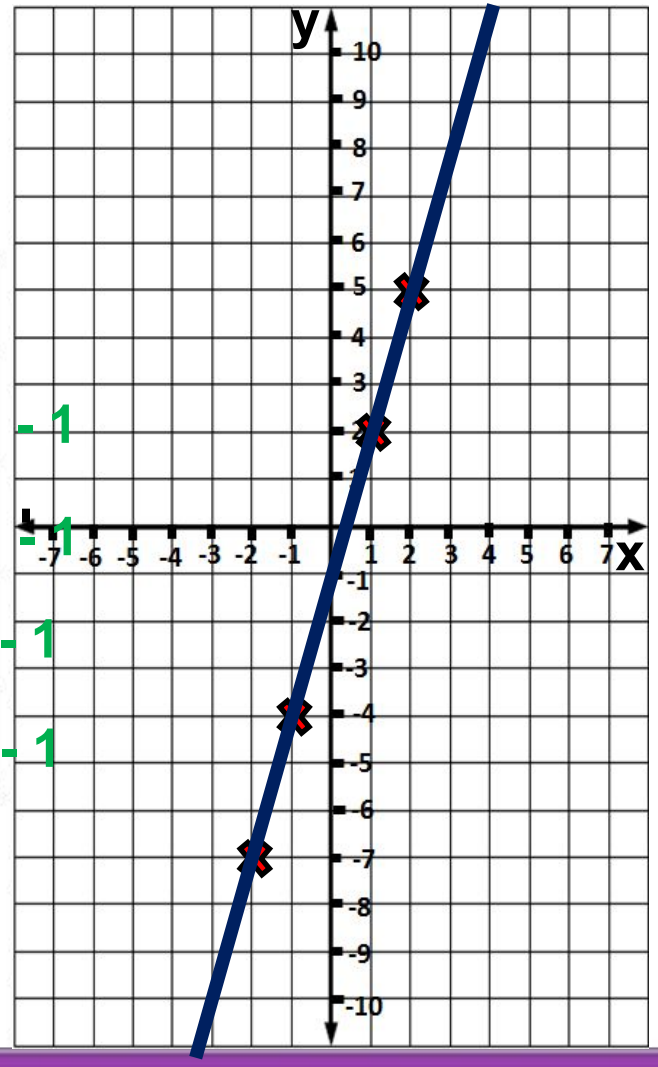
x	y
$-3\frac{1}{2}$	$2 \times -3.5 + 1 = -6$
0	$2 \times 0 + 1 = 1$
1	$2 \times 1 + 1 = 3$
3	$2 \times 3 + 1 = 7$



2)

$y = 3x - 1$

x	y
-2	$3 \times -2 - 1 = -7$
-1	$3 \times -1 - 1 = -4$
1	$3 \times 1 - 1 = 2$
2	$3 \times 2 - 1 = 5$



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LINE GRAPHS

LO: To accurately draw linear graphs from a table.

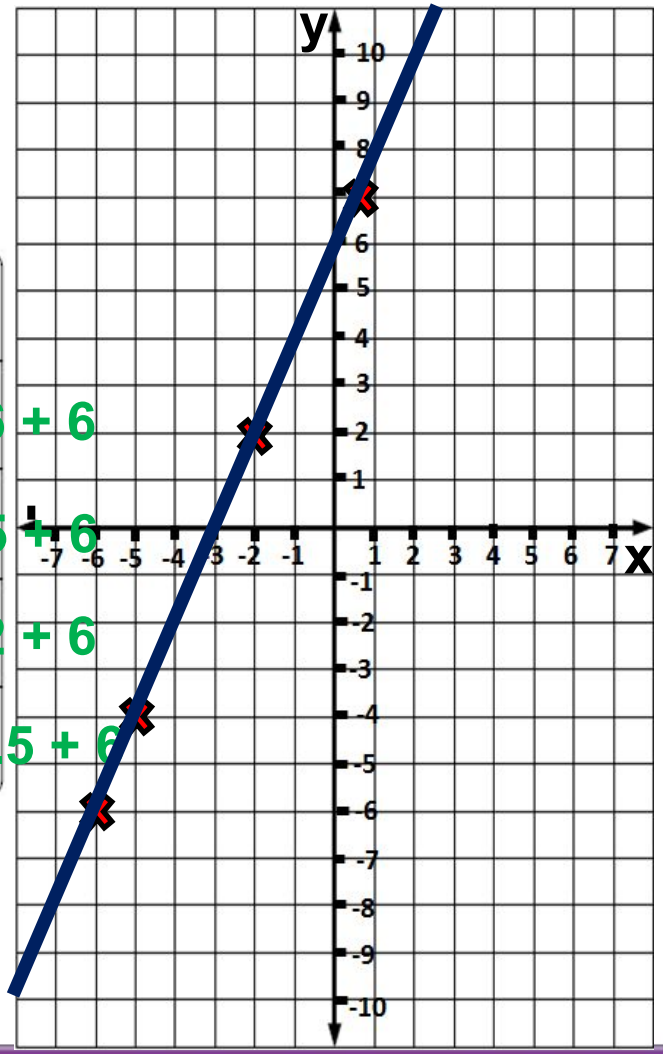
TASK 3

Complete the function table and graph the line for each equation.

1)

$y = 2x + 6$

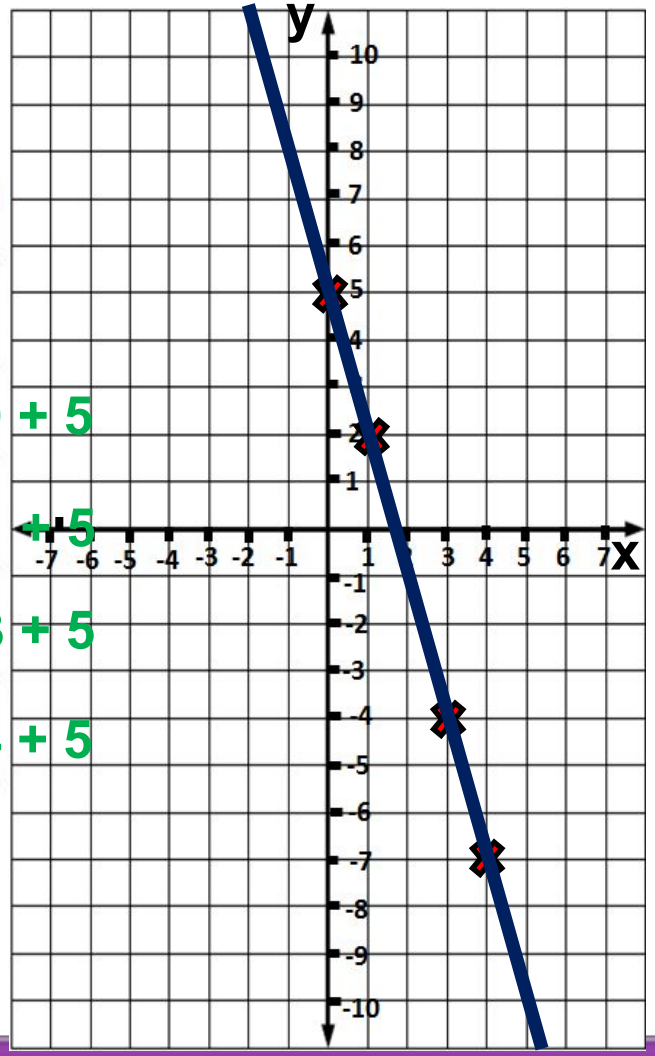
x	y
-6	$2 \times -6 + 6$ = -6
-5	$2 \times -5 + 6$ = -4
-2	$2 \times -2 + 6$ = 2
$\frac{1}{2}$	$2 \times 0.5 + 6$ = 7



2)

$y = -3x + 5$

x	y
0	$-3 \times 0 + 5$ = 5
1	$-3 \times 1 + 5$ = 2
3	$-3 \times 3 + 5$ = -4
4	$-3 \times 4 + 5$ = -7



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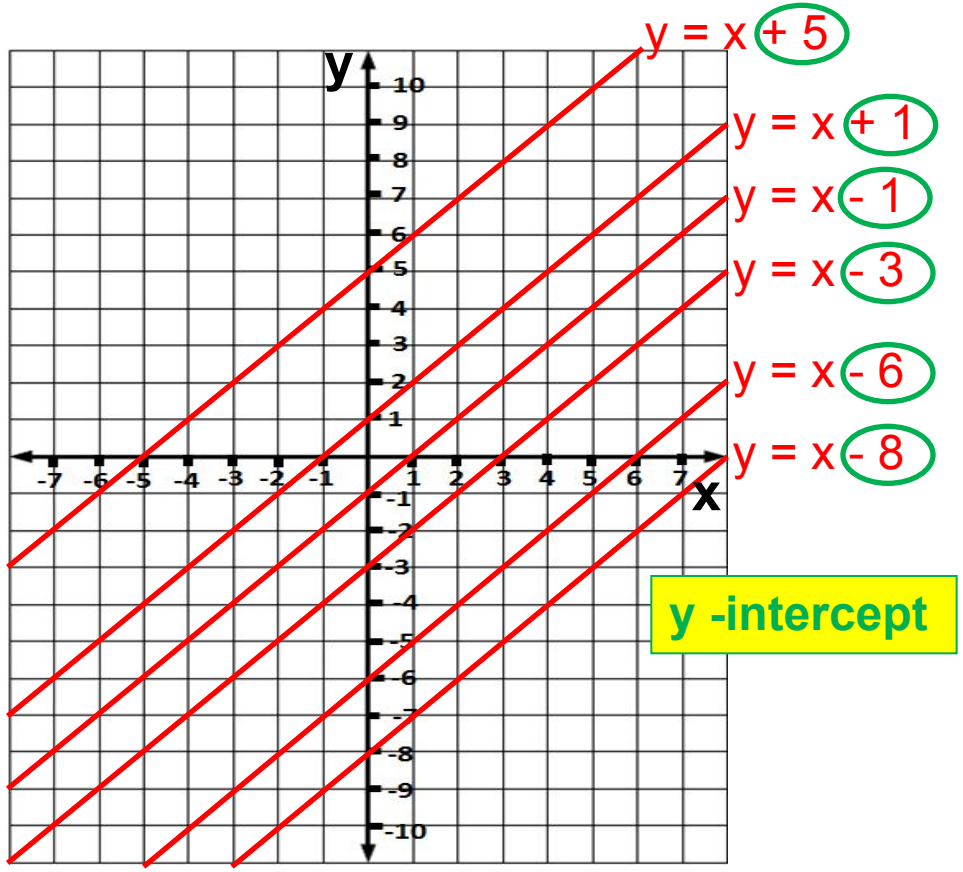
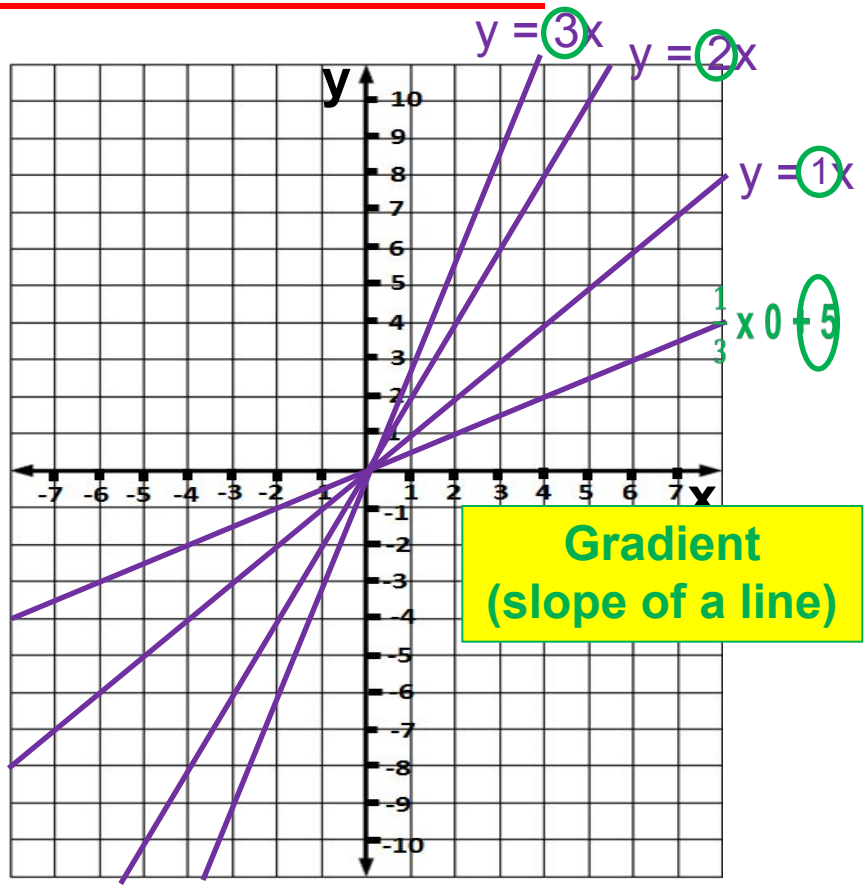
PLENARY – ASSESSING UNDERSTANDING





What connections can you find between the equations and their respective graphs?

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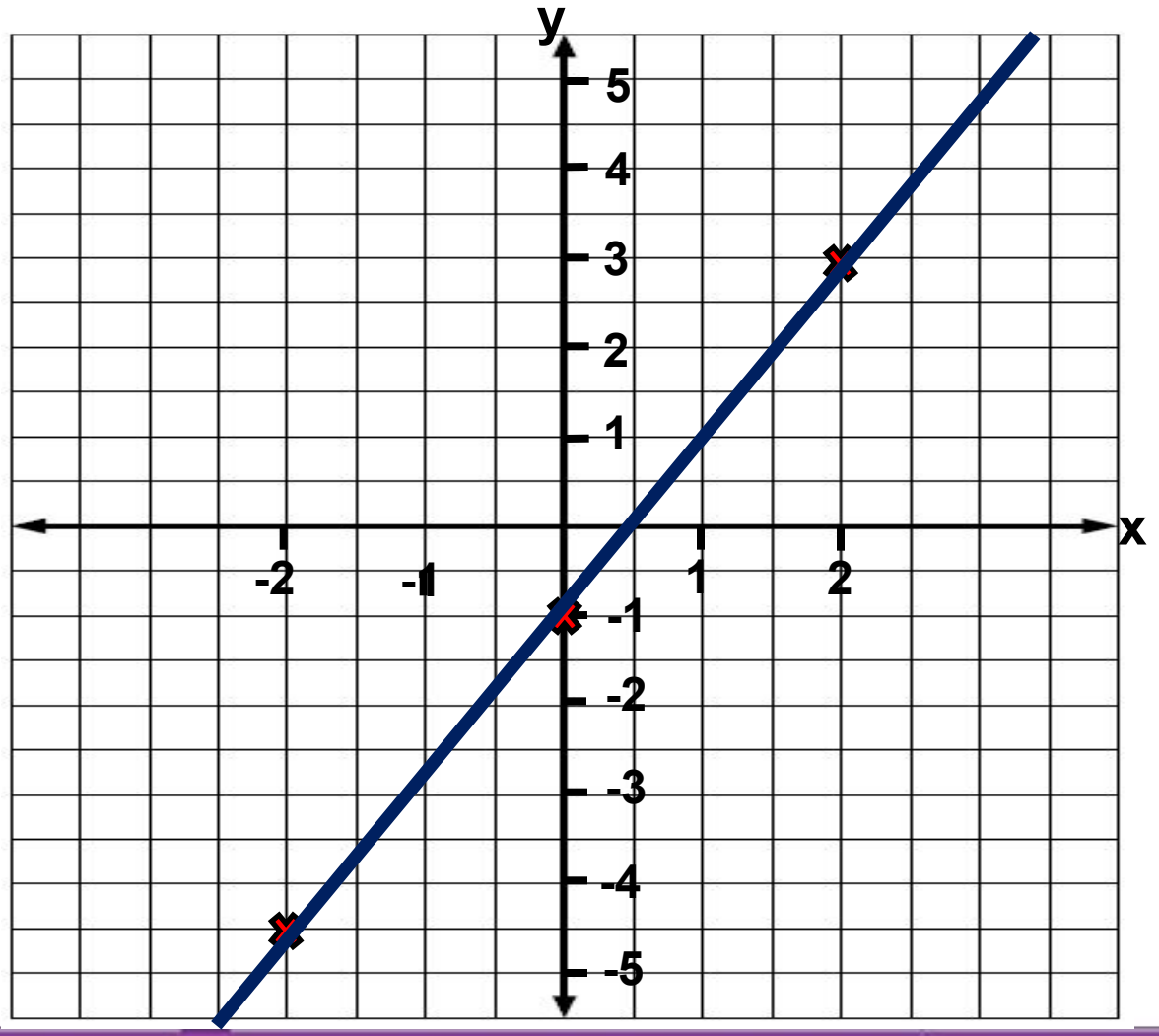
PLENARY ACTIVITY

Draw the graph of $y = 2x - 1$ on the axes below:



Draw your own table and make up your x values

means 2 times x - 1

x	y = 2x - 1
-2	2 x -2 - 1
0	2 x 0 - 1
2	2 x 2 - 1

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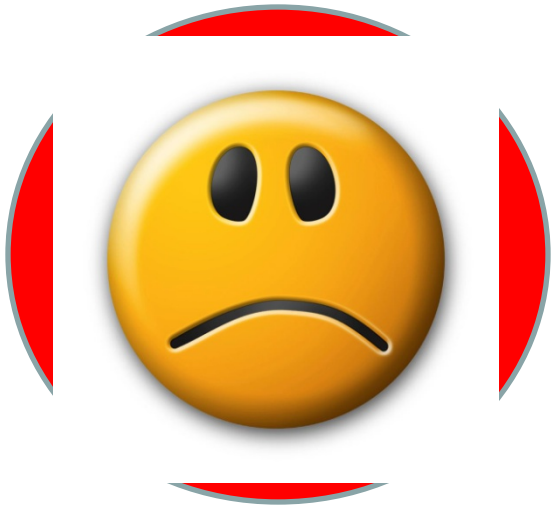
Plenary Activity

How well do you understand the task?



I don't understand

I nearly understand

I fully understand