Cartesian Coordinates

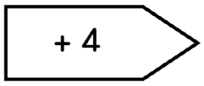
NAME: .....

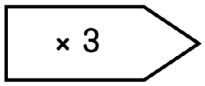
CLASS: .....

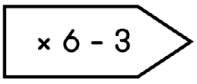
DATE: .....

Basic

1) The sequence 1, 2, 3, 4, 5… is put into these number machines. Write down the numbers that come out.

a) 

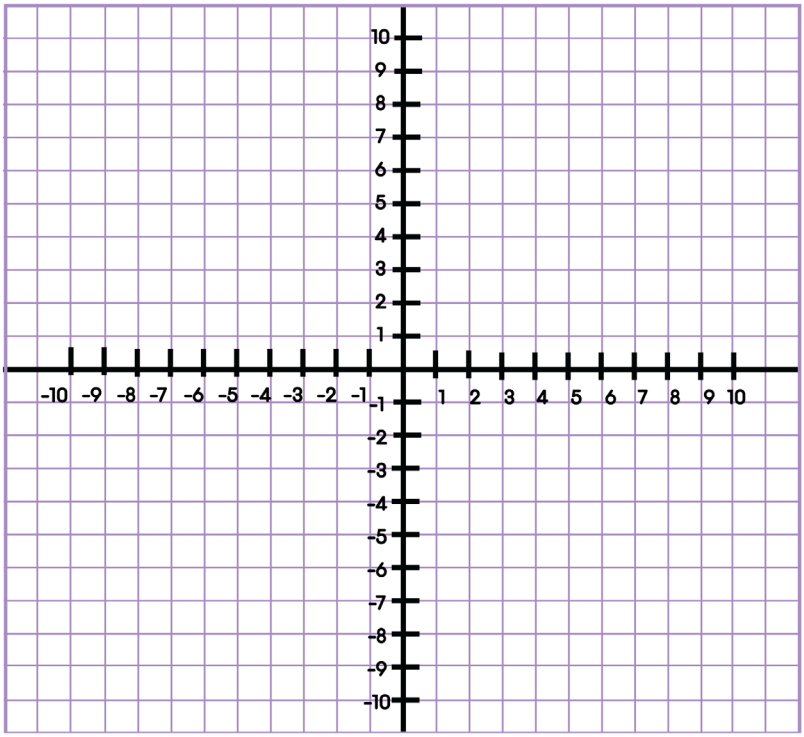
b) 

c) 

2) a) Using the equation $y = 3x + 1$, fill in the table below for the x and y coordinates that are generated using this equation.

x-coordinate	-3	-2	-1	0	1	2	3
y-coordinate							

b) Using the values in the table, plot the points on the graph below and join them up.

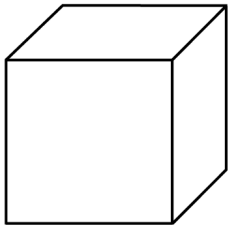


Cartesian Coordinates

Basic

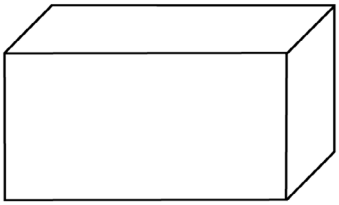
3) Give the name and properties of the following shapes:

a)



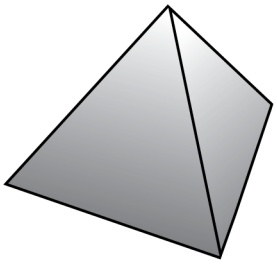
Name:
Number of faces:
Number of edges:
Number of vertices:

b)



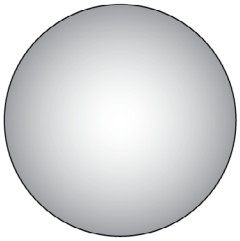
Name:
Number of faces:
Number of edges:
Number of vertices:

c)



Name:
Number of faces:
Number of edges:
Number of vertices:

d)



Name:
Number of faces:
Number of edges:
Number of vertices:

Cartesian Coordinates

NAME: .....

CLASS: .....

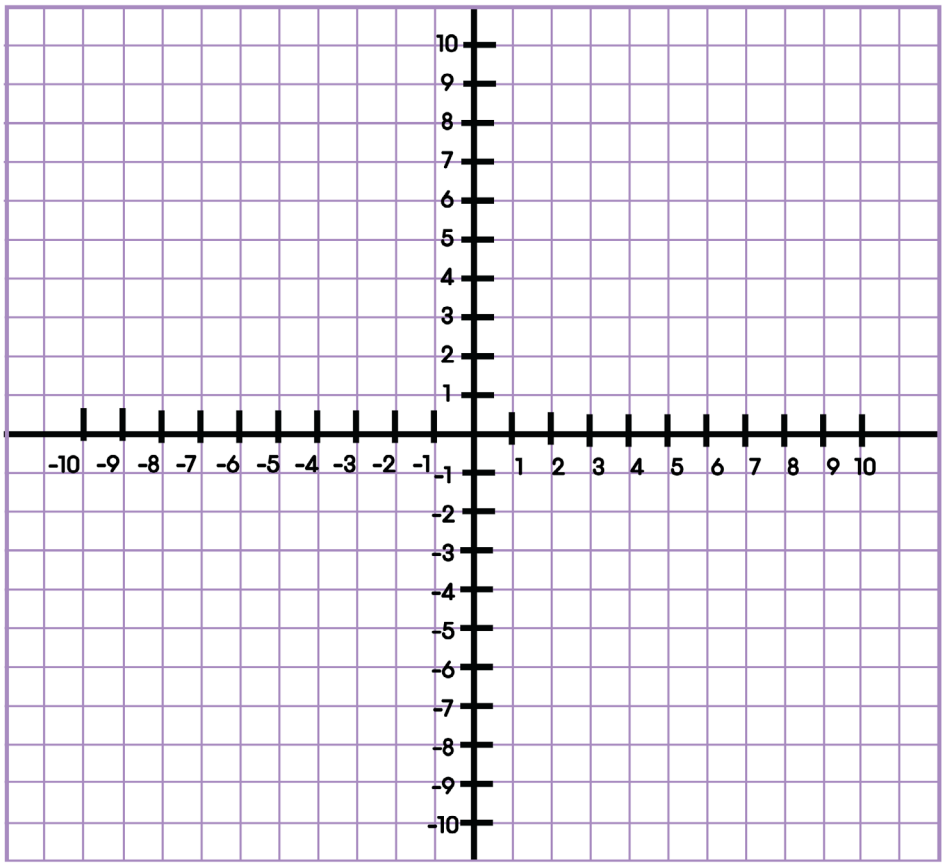
DATE: .....

Core

1) a) Using the equation $y = 3x + 1$, fill in the table below for the x and y coordinates that are generated using this equation.

x-coordinate	-3	-2	-1	0	1	2	3
y-coordinate							

b) Using the values in the table, plot the points on the graph below and join them up.



2) Using a similar method to the above, draw graphs of the following relationships between the x and y coordinates.

a) $y = 2x - 3$ b) $y - x = 3$ c) $y = x^2 - 4$

Cartesian Coordinates

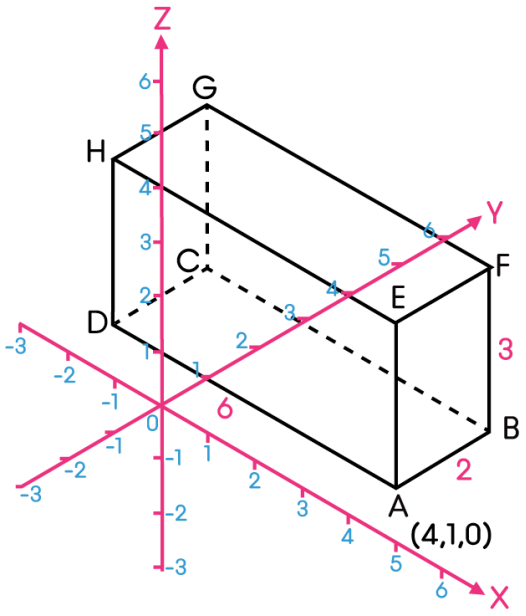
Core

3) Calculate the midpoint of the line joining the following points:

a) (1, 0) and (9, 6)

b) (-5, -3) and (3, -7)

4) The edges of the cuboid below are parallel to the axes. Vertex A is (4, 1, 0).
AD = 6 units, AB = 2 units, and BF = 3 units. What are the coordinates of the other vertices?



Cartesian Coordinates

NAME: .....

CLASS: .....

DATE: .....

Advanced

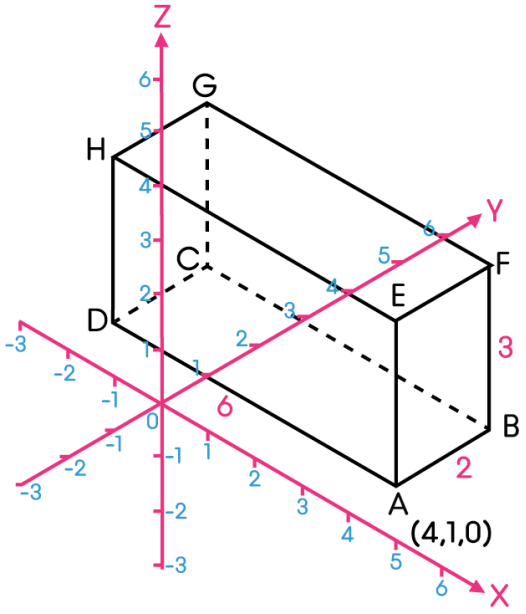
1) Draw the graphs of the following relationships between the x and y coordinates.

a) $y = 2x - 3$ b) $y - x = 3$ c) $y = x^2 - 4$

2) Calculate the midpoint of the line joining the following points:

a) (1, 0) and (9, 6) b) (-5, -3) and (3, -7)

3) The edges of the cuboid below are parallel to the axes. Vertex A is (4, 1, 0).
AD = 6 units, AB = 2 units, and BF = 3 units. What are the coordinates of the other vertices?



Cartesian Coordinates

Advanced

4)

Make a Tesseract

1) Start with a straight line.

2) Make a copy of the line, and move it away from the first line in a new direction.

3) Connect corresponding points; you should now have a square.

4) Copy the square and move it in a new direction.

5) Connect corresponding points; you now have a cube.

6) Make a copy and move it in a new direction.

7) Connect corresponding points; this is the tesseract.

Cartesian Coordinates

ANSWERS

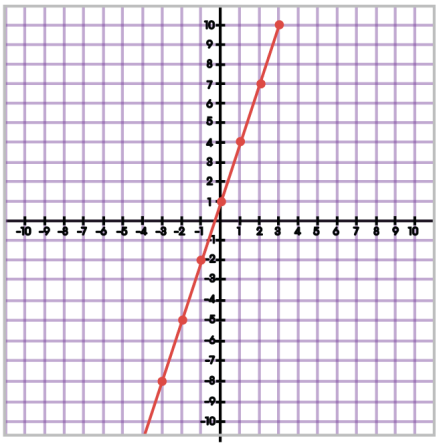
Basic

1) a) 5, 6, 7, 8, 9 **b) 3, 6, 9, 12, 15** **c) 3, 9, 15, 21, 27**

2) a)

x-coordinate	-3	-2	-1	0	1	2	3
y-coordinate	-8	-5	-2	1	4	7	10

b)



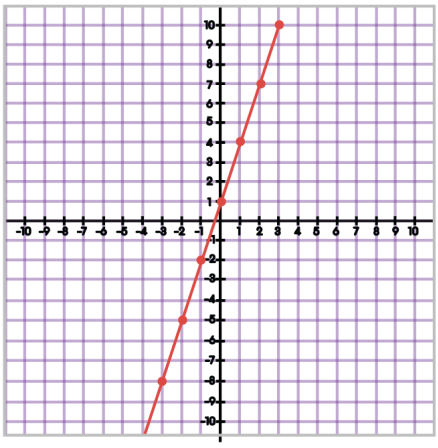
3) a) Cube, 6, 12, 8 **b) Cuboid, 6, 12, 8** **c) Tetrahedron, 4, 6, 4** **d) Sphere, 1, 0, 0**

Core

1) a)

x-coordinate	-3	-2	-1	0	1	2	3
y-coordinate	-8	-5	-2	1	4	7	10

b)

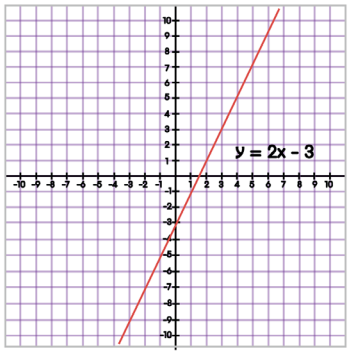


Cartesian Coordinates

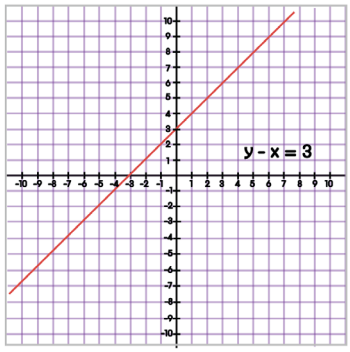
ANSWERS

Core Continued ...

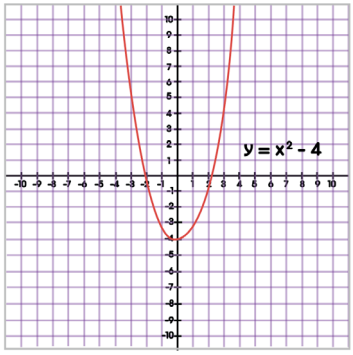
2) a)



b)



c)

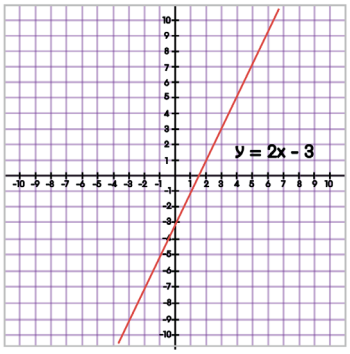


3) a) (5, 3) **b) (-1, -5)**

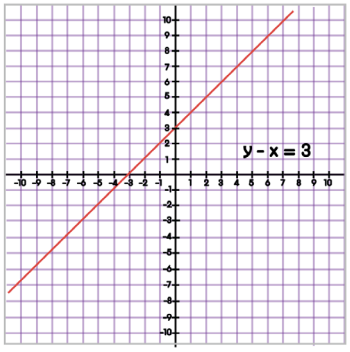
4) B (4, 3, 0); C (-2, 3, 0); D (-2, 1, 0); E (4, 1, 3); F (4, 3, 3); G (-2, 3, 3); H (-2, 1, 3)

Advanced

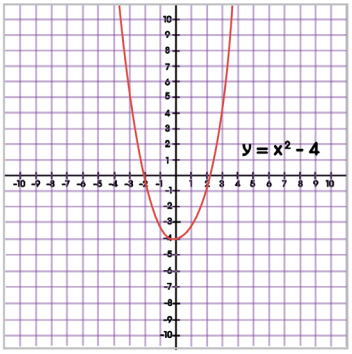
1) a)



b)



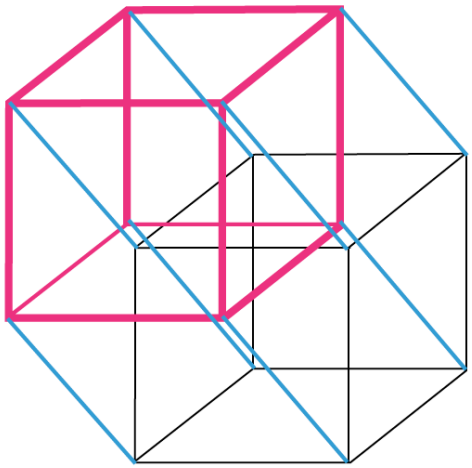
c)



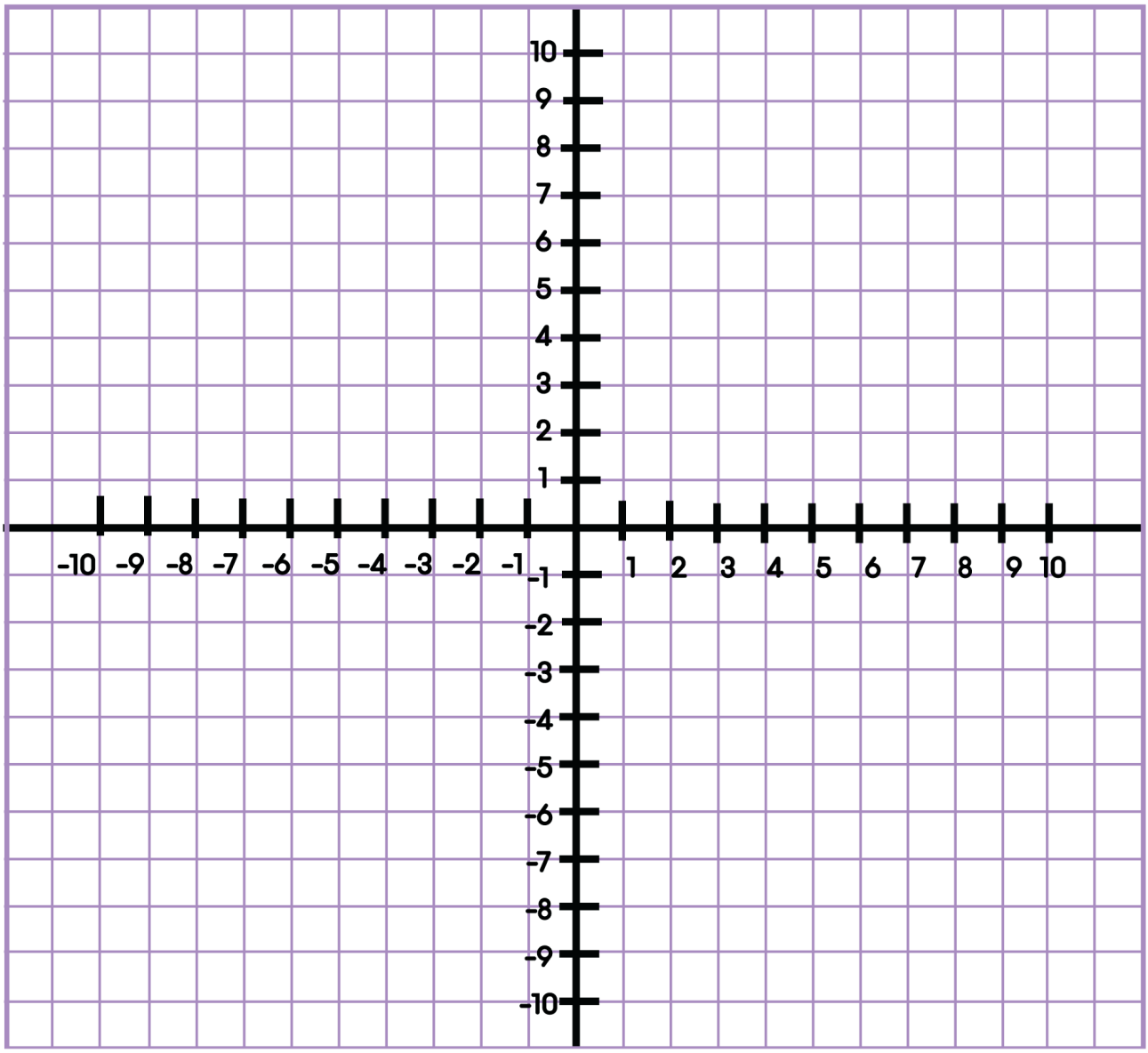
2) a) (5, 3) **b) (-1, -5)**

3) B (4, 3, 0); C (-2, 3, 0); D (-2, 1, 0); E (4, 1, 3); F (4, 3, 3); G (-2, 3, 3); H (-2, 1, 3)

4)



Cartesian Coordinates



Cartesian Coordinates