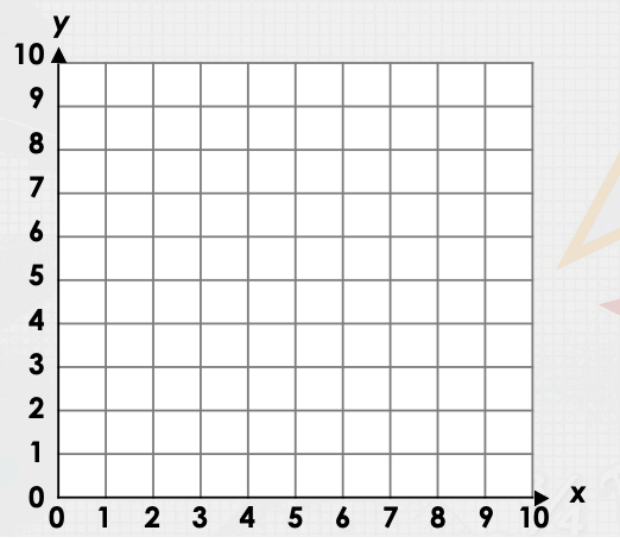
Week beginning 11/5/20

This week we are going to start a unit about coordinates and directions.

Lesson 1 Describing positions.

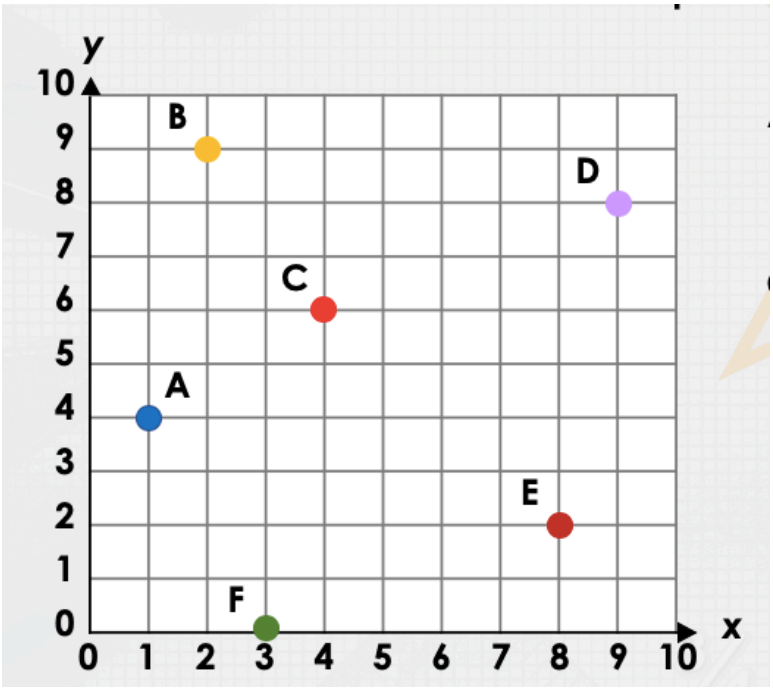


When we draw a grid each number is level with a line and does not sit in the middle of a square.

The line on the left is called the y axis and the line at the bottom is called the x axis.

You can find a short clip about this :
https://www.bbc.co.uk/bitesize/clips/z7qmpv4

- To read a coordinate (position) you move along the x axis to the right and stop at the line where the shape/object is.
- This number makes the first part of the coordinate (1,).
- Next move up the y axis and stop at the shape/object. Look at the number of that line and write it inside the bracket (1, 4)
- Remember , you have to go along then up.
- Put a comma in between each number inside the bracket.



Now all read some coordinates. Write the coordinate for each grid.
You can find a quick game on -line to practise first.
https://mathsframe.co.uk/en/resources/resource/469/Coordinates-Alien-Attack

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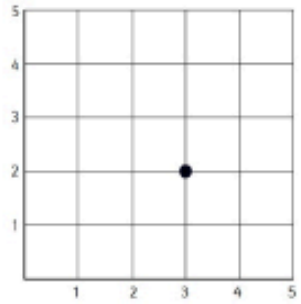	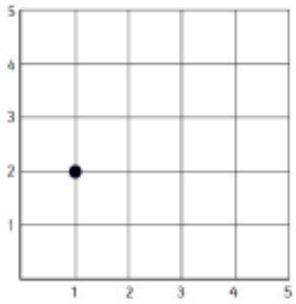	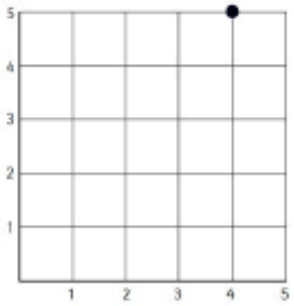
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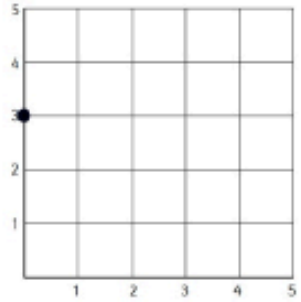	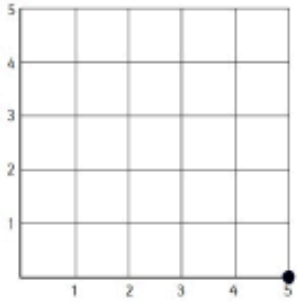	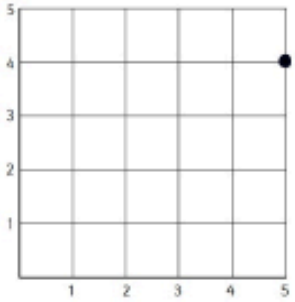
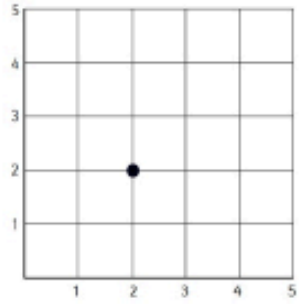	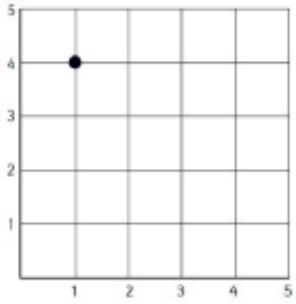	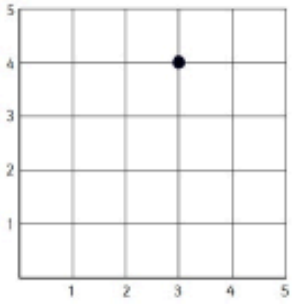
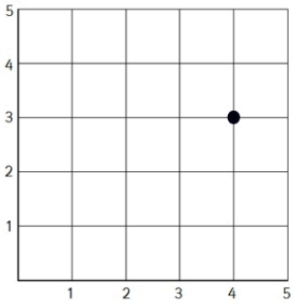	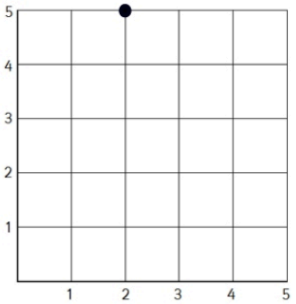	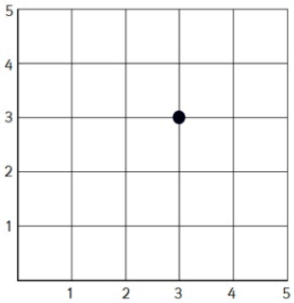

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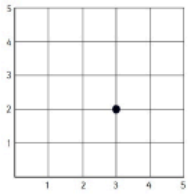
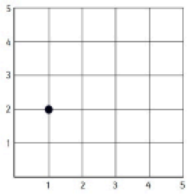
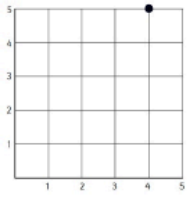
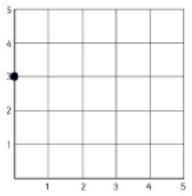
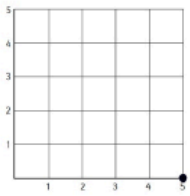
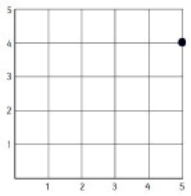
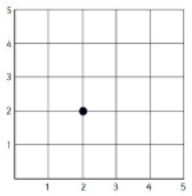
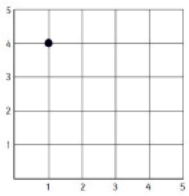
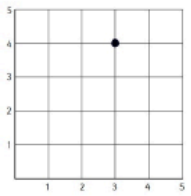
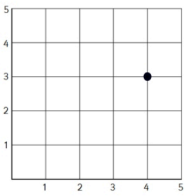
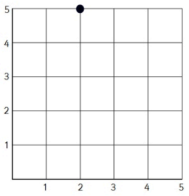
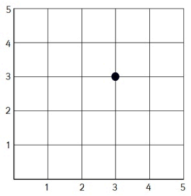
		
(3,2)	(1,2)	(4,5)
		
(0,3)	(5,0)	(5,4)
		
(2,2)	(1,4)	(3,4)
		
(4,3)	(2,5)	(3,3)

Answers

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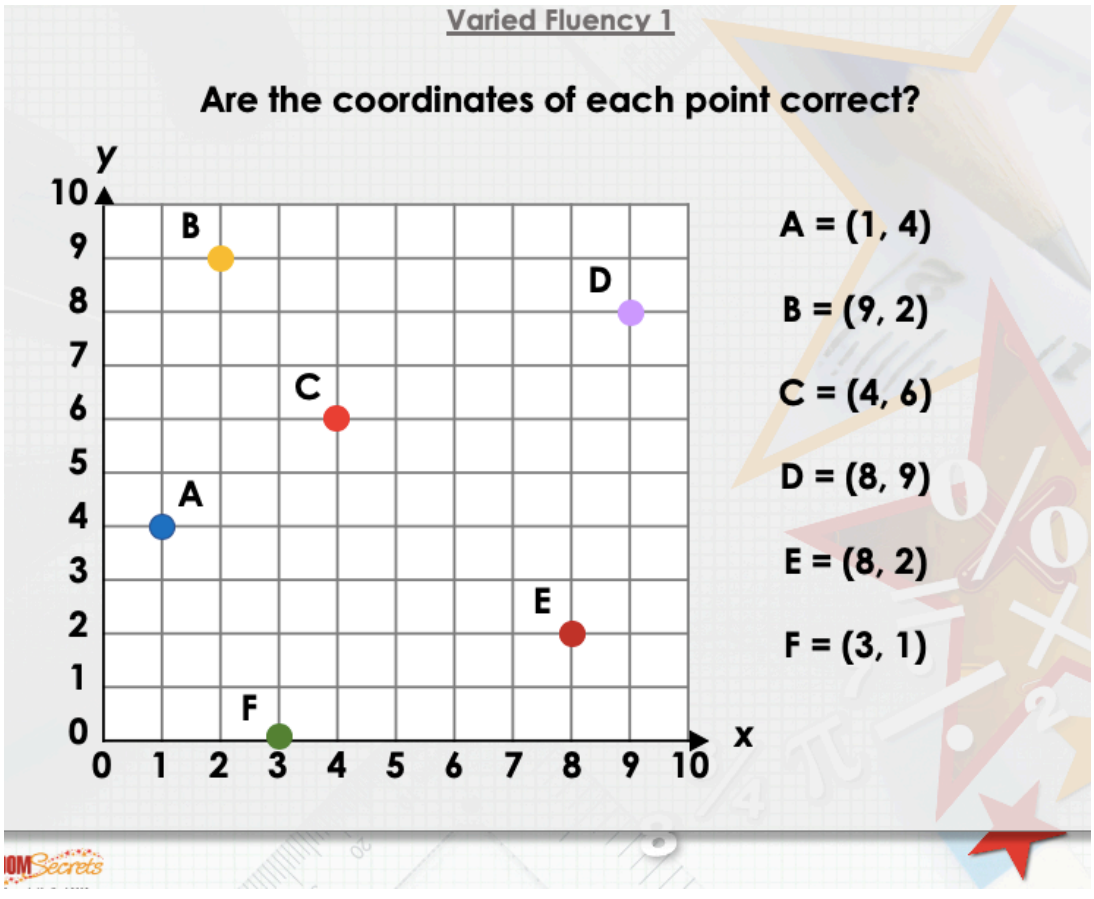
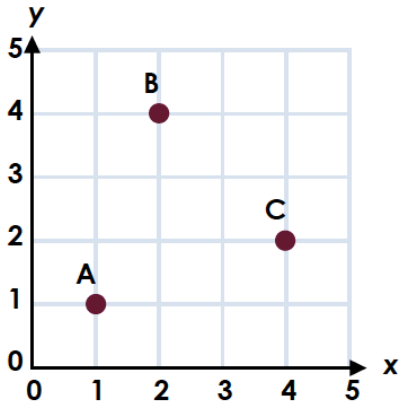
Now try this then complete the Describe Position questions.



Describe Position

1a. I'm thinking of a coordinate. The value of x is between 2 and 5 and the value of y is between 1 and 3. Which coordinate could it be? Explain your answer.

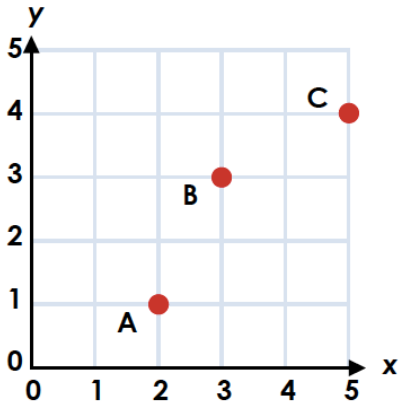


D

R

Describe Position

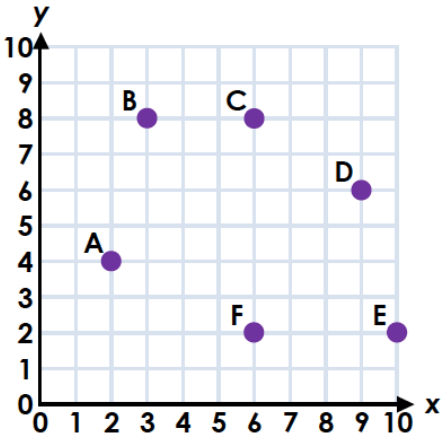
1b. I'm thinking of a coordinate. The value of x is between 2 and 4 and the value of y is between 3 and 5. Which coordinate could it be? Explain your answer.



D

R

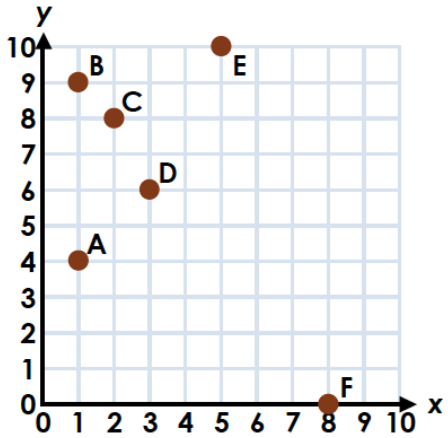
4a. I'm thinking of a coordinate. The value of x is between 3 and 6 and the value of y is between 7 and 9. Which coordinate could it be? Explain your answer.



E

R

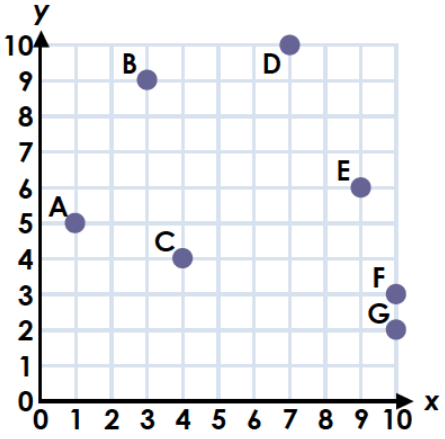
4b. I'm thinking of a coordinate. The value of x is between 2 and 4 and the value of y is between 3 and 6. Which coordinate could it be? Explain your answer.



E

R

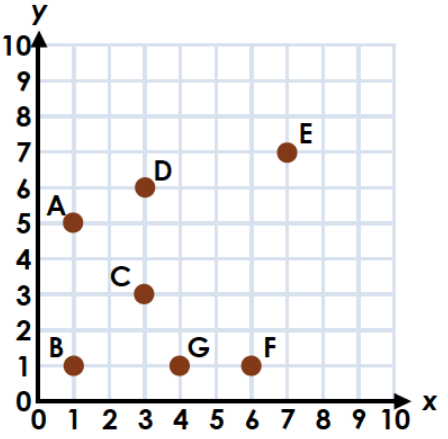
7a. I'm thinking of a coordinate. The value of x is between 3 and 6 and the value of y is between 1 and 6. Which coordinate could it be? Explain your answer.



GD

R

7b. I'm thinking of a coordinate. The value of x is between 0 and 5 and the value of y is between 4 and 7. Which coordinate could it be? Explain your answer.

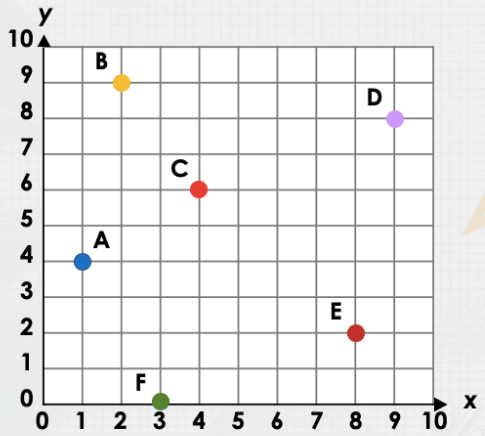


GD

R

Varied Fluency 1

Are the coordinates of each point correct?



A = (1, 4) ✓

B = (9, 2) ✗ (2, 9)

C = (4, 6) ✓

D = (8, 9) ✗ (9, 8)

E = (8, 2) ✓

F = (3, 1) ✗ (3, 0)

Were you right?

Developing

1a. B and C are correct. A = (1, 4); D = (4, 4)

Expected

4a. B and E are correct. A = (7, 6); C = (1, 2); D = (3, 4); F = (9, 7)

Greater Depth

7a. B and F are correct. A = (4, 8); C = (10, 11); D = (16, 14); E = (12, 6)

Developing

1b. A and D are correct. B = (3, 5); C = (3, 3)

Expected

4b. A, B and F are correct. C = (6, 4); D = (9, 3); E = (3, 1)

Greater Depth

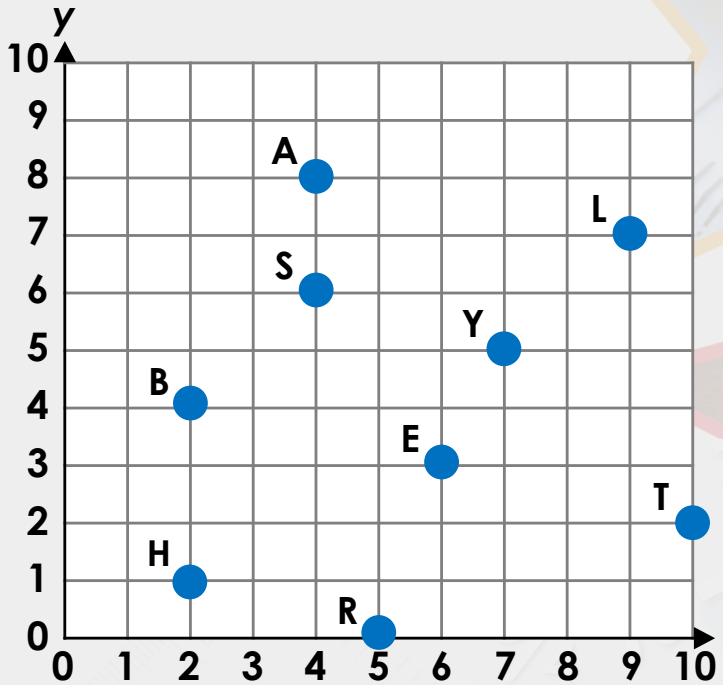
7b. A, B and F are correct. C = (16, 14); D = (18, 8); E = (9, 5)

Try reading these coordinates to spell a word.

Varied Fluency 2

Find these coordinates in order. What word do the letters spell?

(6, 3) (4, 8) (5, 0) (9, 7) (7, 5)



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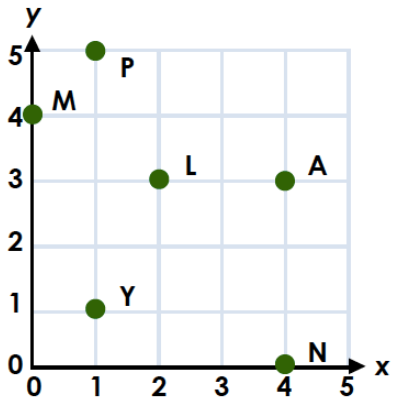
They spell EARLY

Try a couple of questions like this.

2a. Find the coordinates in order. What word do the letters spell?

(0, 4) (4, 3) (4, 0) (1, 1)

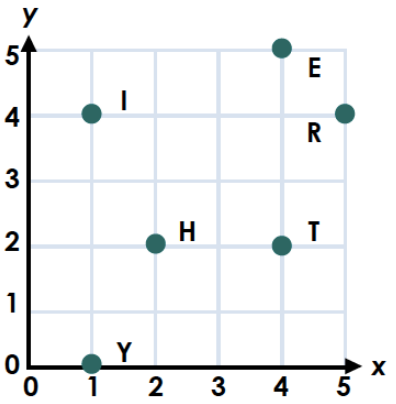


D

VF

2b. Find the coordinates in order. What word do the letters spell?

(4, 2) (2, 2) (4, 5) (1, 0)

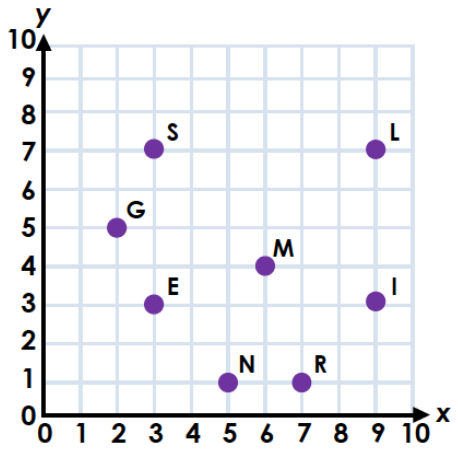


D

VF

5a. Find the coordinates in order. What word do the letters spell?

(7, 1) (3, 3) (9, 3) (2, 5) (5, 1)

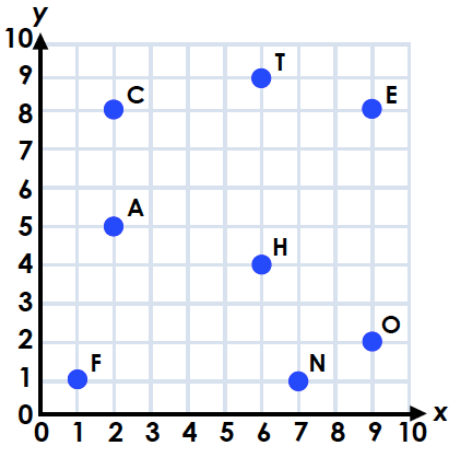


E

VF

5b. Find the coordinates in order. What word do the letters spell?

(9, 2) (1, 1) (6, 9) (9, 8) (7, 1)

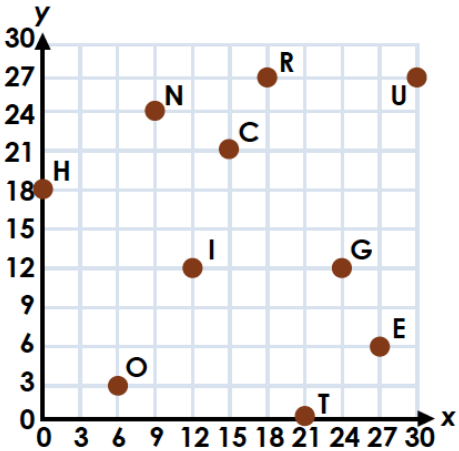


E

VF

8a. Find the coordinates in order. What word do the letters spell?

(27, 6) (9, 24) (6, 3) (30, 27) (24, 12) (0, 18)

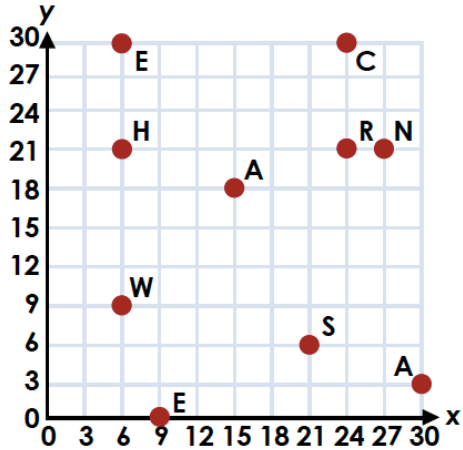


GD

VF

8b. Find the coordinates in order. What word do the letters spell?

(30, 3) (27, 21) (21, 6) (6, 9) (6, 30) (24, 21)

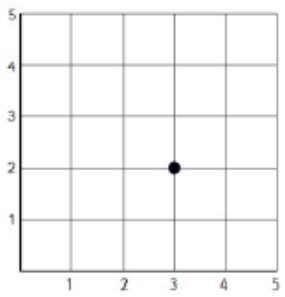
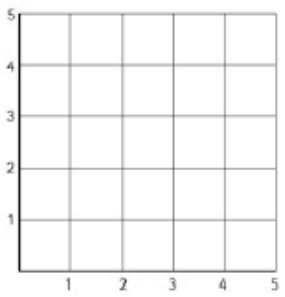
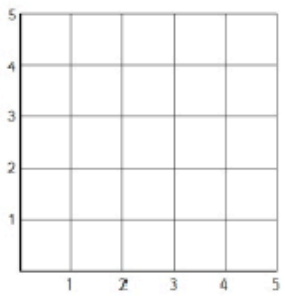
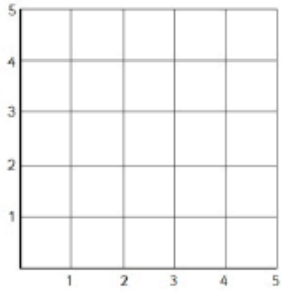
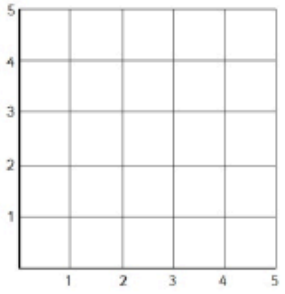
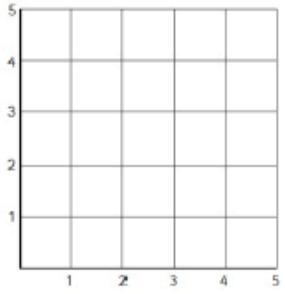
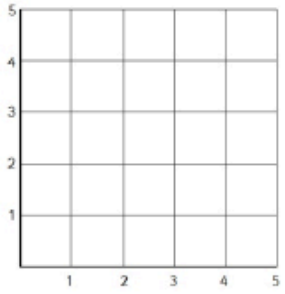
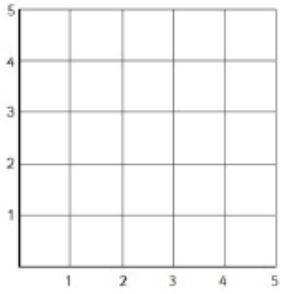
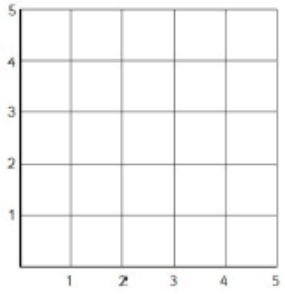
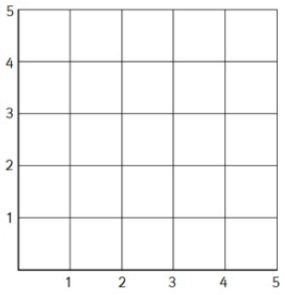
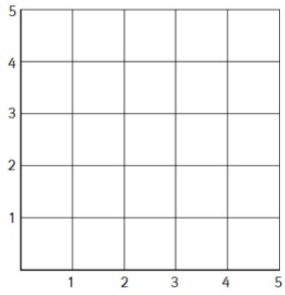
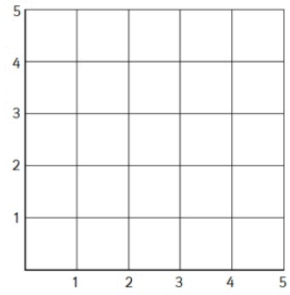


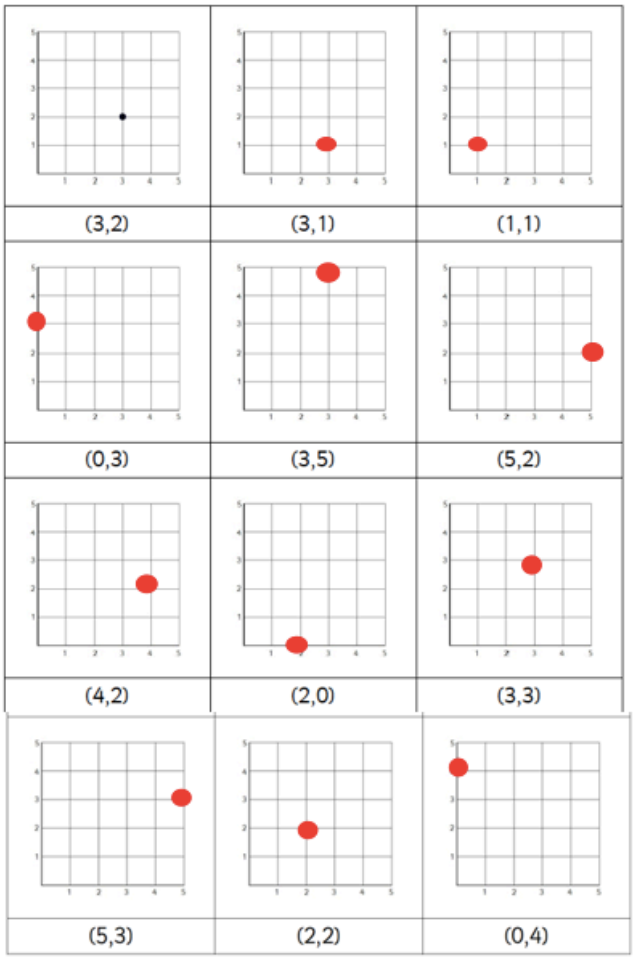
GD

VF

Answers: 2a MANY 2b THEY 5a REIGN 5b OFTEN 8a ENOUGH 8b ANSWER

NOW ALL HAVE A TRY AT PLOTTING SOME COORDINATES.

		
(3,2)	(3,1)	(1,1)
		
(0,3)	(3,5)	(5,2)
		
(4,2)	(2,0)	(3,3)
		
(5,3)	(2,2)	(0,4)



Check your answers.

Work out the missing coordinates for B, D, F and plot those for A, C and E .

Varied Fluency 3

Complete the coordinates below and plot any missing points on the grid.

A = (5 , 3)

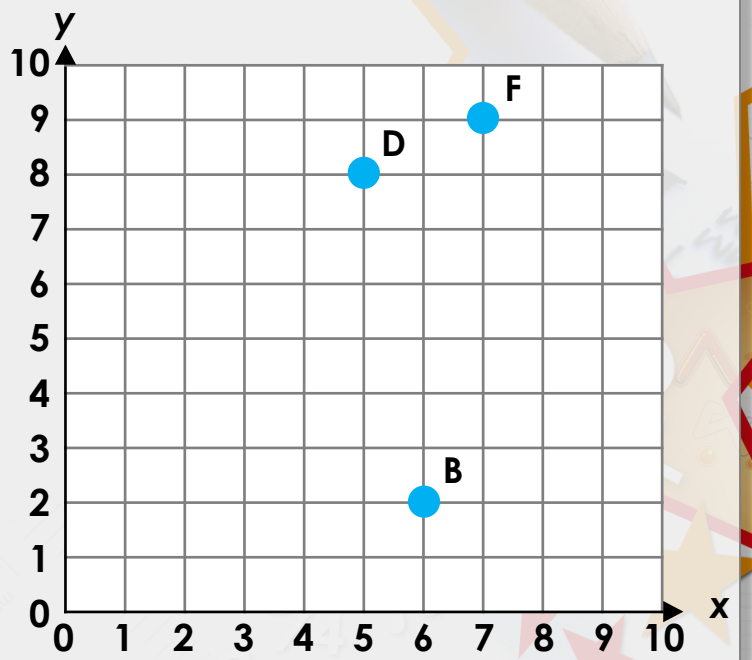
B = (,)

C = (1 , 7)

D = (,)

E = (4 , 6)

F = (,)



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Varied Fluency 3

Complete the coordinates below and plot any missing points on the grid.

A = (5 , 3)

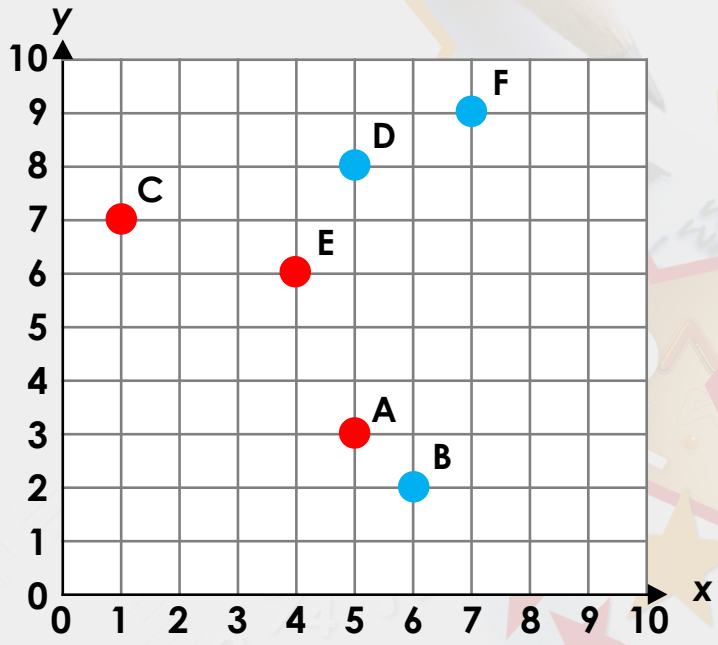
B = (6 , 2)

C = (1 , 7)

D = (5 , 8)

E = (4 , 6)

F = (7 , 9)



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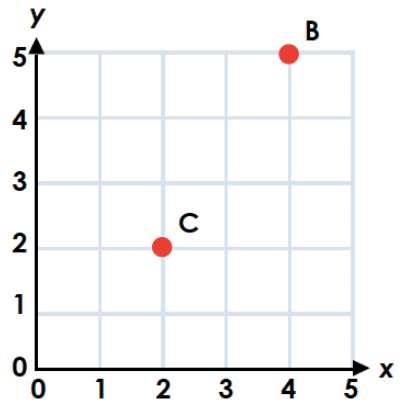
Try these.

3a. Complete the coordinates below and plot any missing points on the grid.

A = (1, 3) B = (,)

C = (,) D = (1, 4)



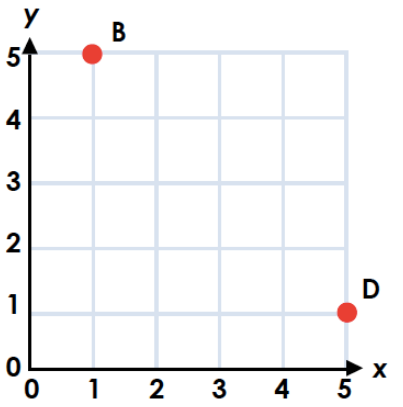
D

VF

3b. Complete the coordinates below and plot any missing points on the grid.

A = (5, 2) B = (,)

C = (3, 3) D = (,)



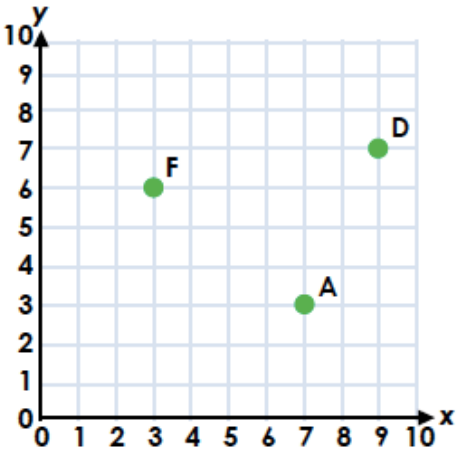
D

VF

6a. Complete the coordinates below and plot any missing points on the grid.

A = (,) B = (2, 9) C = (0, 5)

D = (,) E = (1, 4) F = (,)



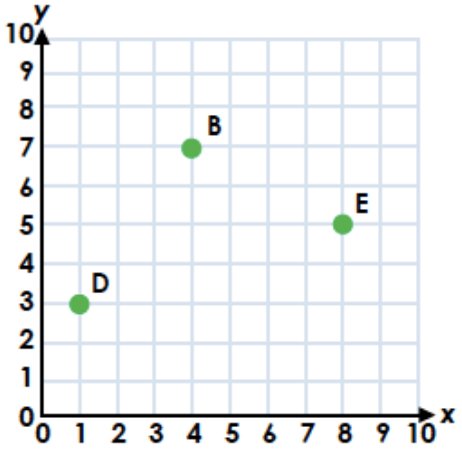
E

VF

6b. Complete the coordinates below and plot any missing points on the grid.

A = (5, 4) B = (,) C = (2, 7)

D = (,) E = (,) F = (9, 1)



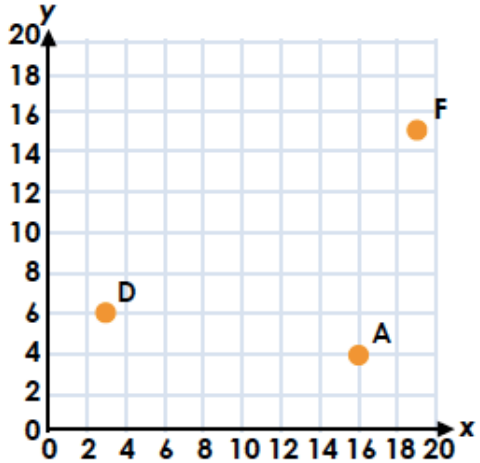
E

VF

9a. Complete the coordinates below and plot any missing points on the grid.

A = (,) B = (8, 13) C = (2, 19)

D = (,) E = (17, 16) F = (,)



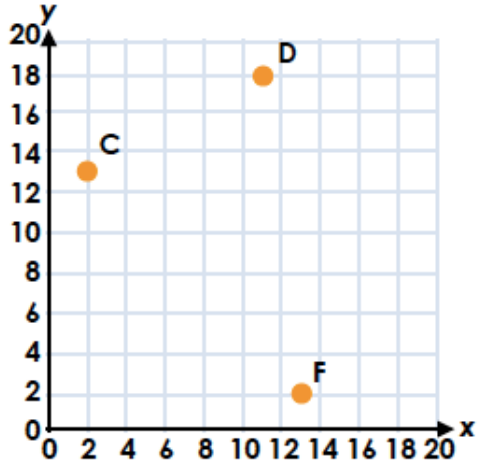
GD

VF

9b. Complete the coordinates below and plot any missing points on the grid.

A = (17, 14) B = (19, 5) C = (,)

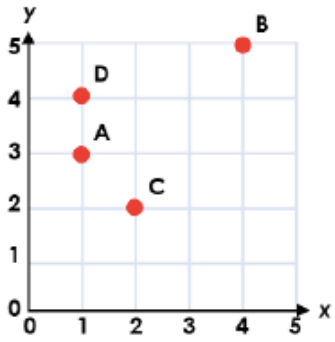
D = (,) E = (3, 11) F = (,)



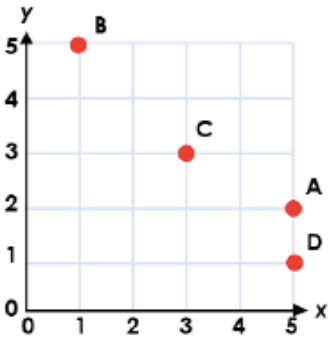
GD

VF

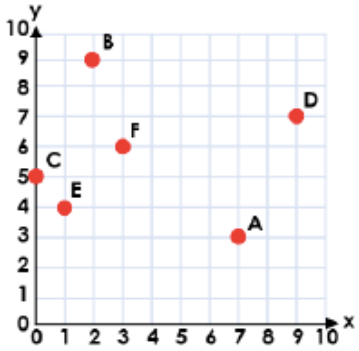
3a. B = (4, 5) and C = (2, 2)
The completed grid should look like this:



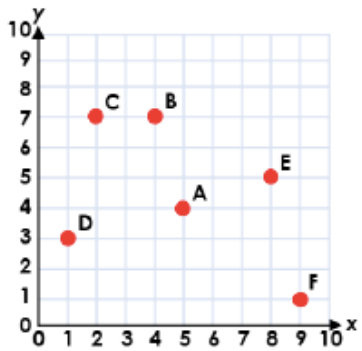
3b. B = (1, 5) and D = (5, 1)
The completed grid should look like this:



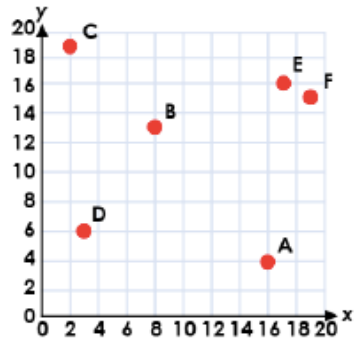
6a. A = (7, 3), D = (9, 7) and F = (3, 6)
The completed grid should look like this:



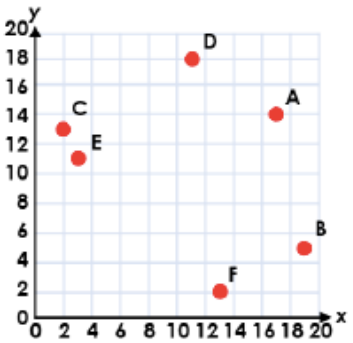
6b. B = (4, 7), D = (1, 3) and E = (8, 5)
The completed grid should look like this:



9a. A = (16, 4), D = (3, 6) and F = (19, 15)
The completed grid should look like this:



9b. C = (2, 13), D = (11, 18) and F = (13, 2)
The completed grid should look like this:



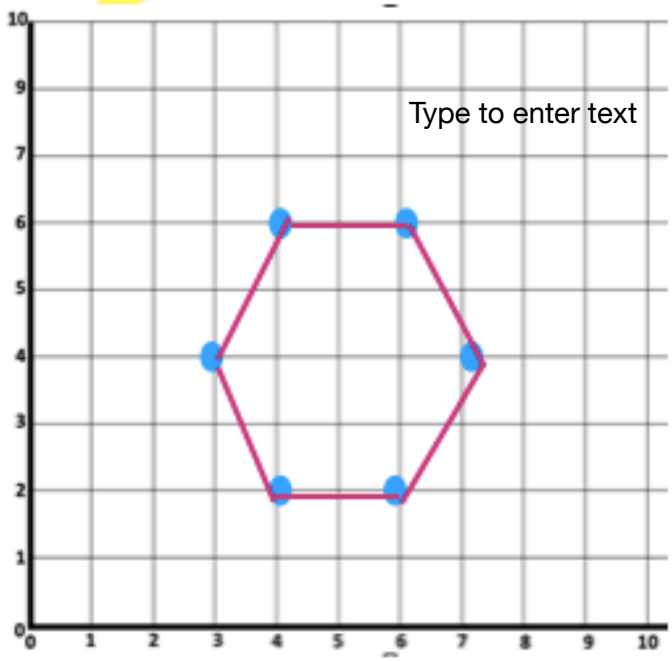
Lesson 2

Joining Coordinates Investigation

A polygon is a 2D flat shape with straight sides. The lines must make a closed shape.

You can plot the coordinates of a polygon and join them up using straight lines.

Join them up in order.



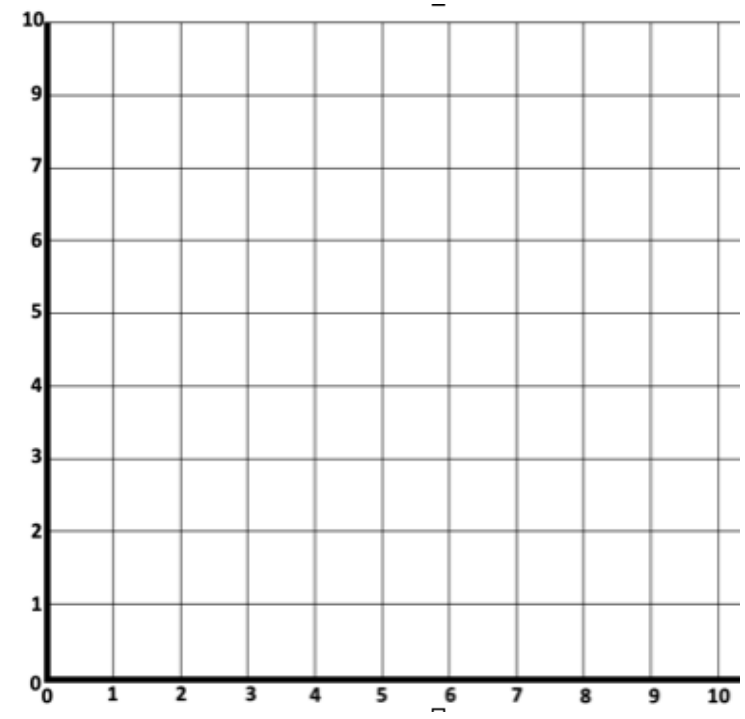
Plot the coordinates on the grid then join the dots in order.
Use a ruler to draw straight lines.
(4, 6) , (6, 6) , (7, 4) , (6, 2) , (4, 2) , (3, 4)

This polygon is a regular hexagon because its sides and internal angles are the same.

Plot the coordinates on the grid then join the dots in order.
Use a ruler to draw straight lines.
(2,4), (3, 10), (6, 7) , (7, 4) , (9, 2) , (5,1)

This polygon is an irregular hexagon because its sides are different lengths and the internal angles are also different.

NOW USE THE GRIDS BELOW TO PLOT DIFFERENT COORDINATES OF A PENTAGON - A FIVE-SIDED POLYGON. MAKE EACH A DIFFERENT SHAPE BUT REMEMBER, THEY MUST ALL HAVE 5 STRAIGHT SIDES. WRITE THE COORDINATES UNDER EACH GRID.THEN TRY A DIFFERENT POLYGON - PERHAPS A TRIANGLE OR AN OCTAGON.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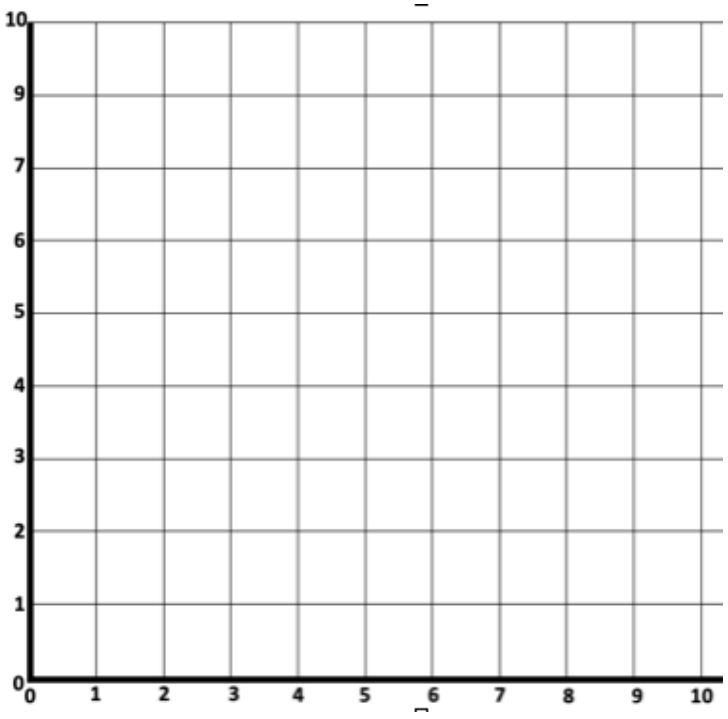
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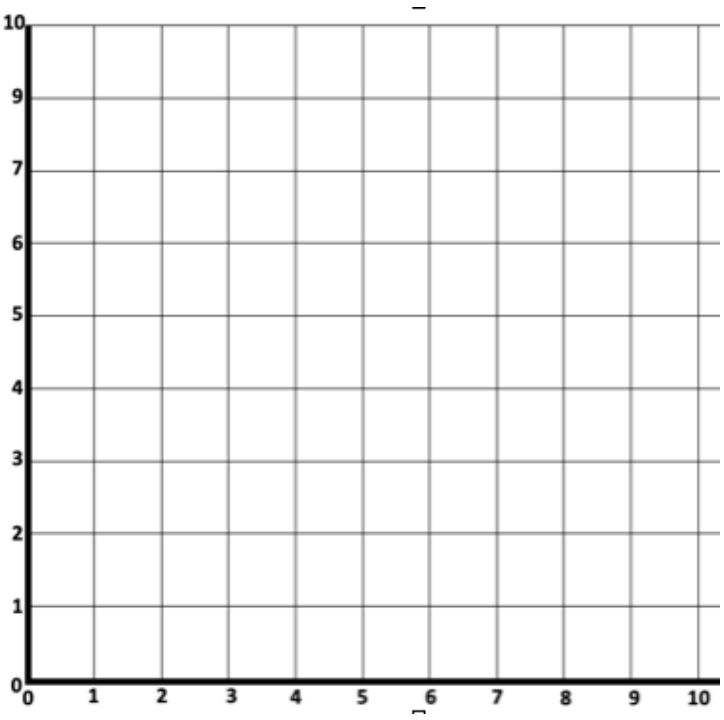
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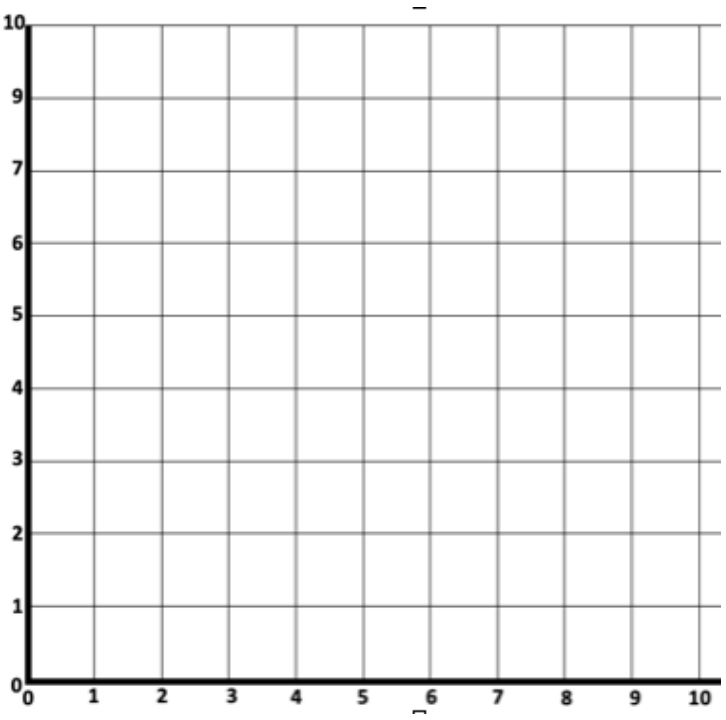
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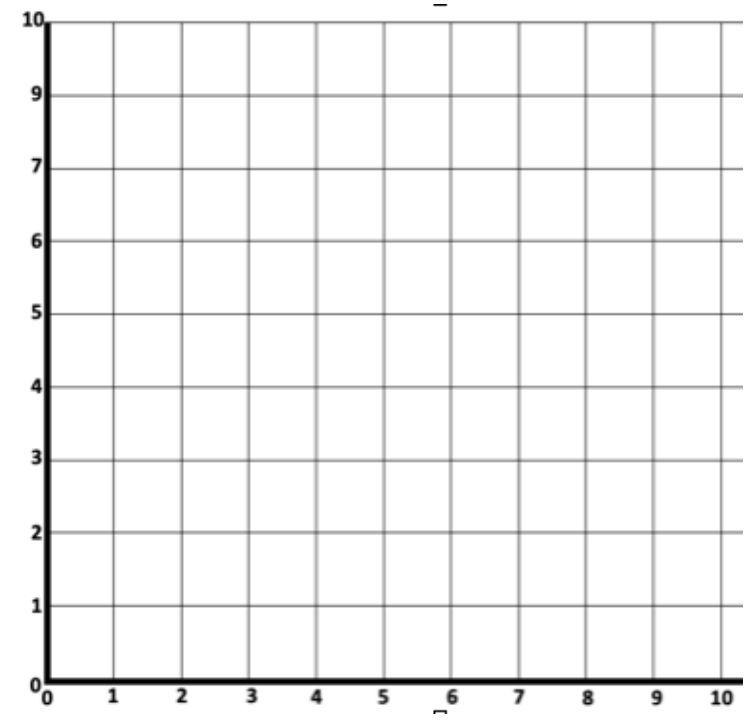
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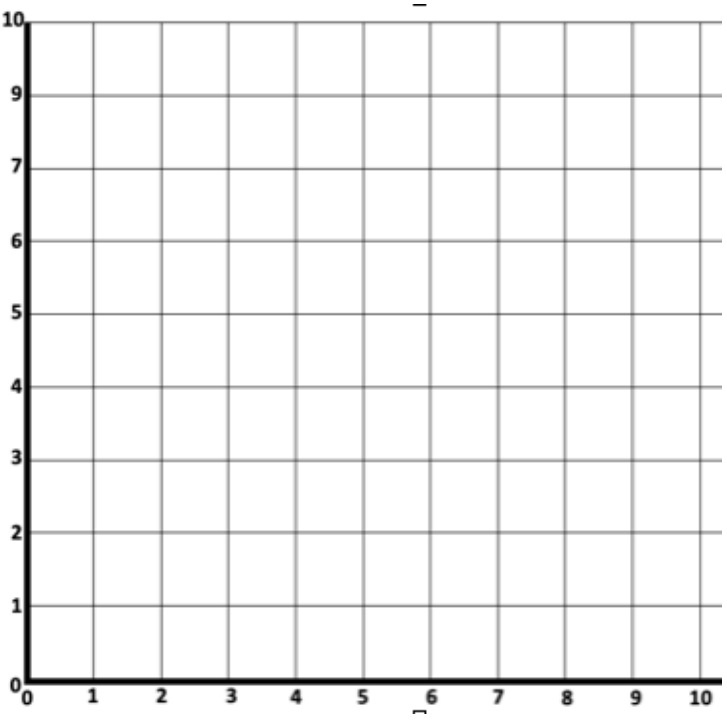
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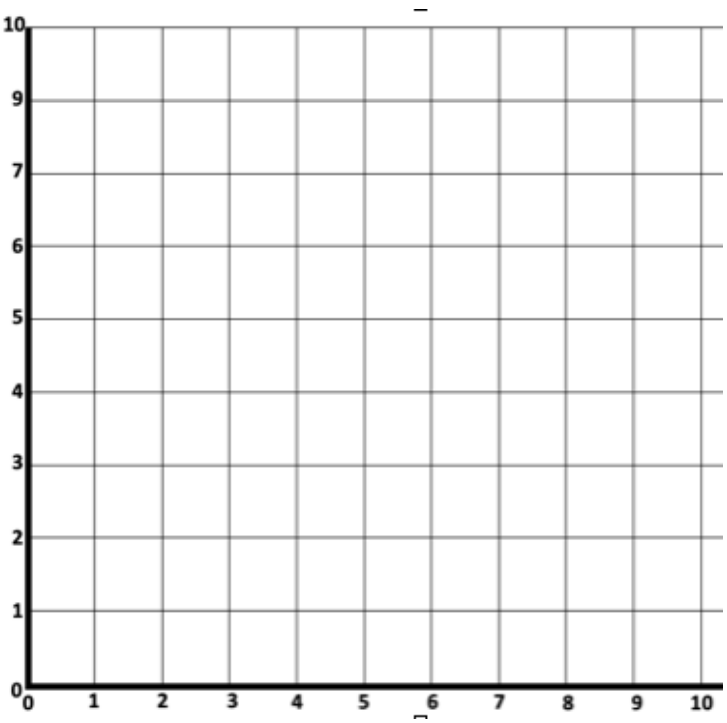
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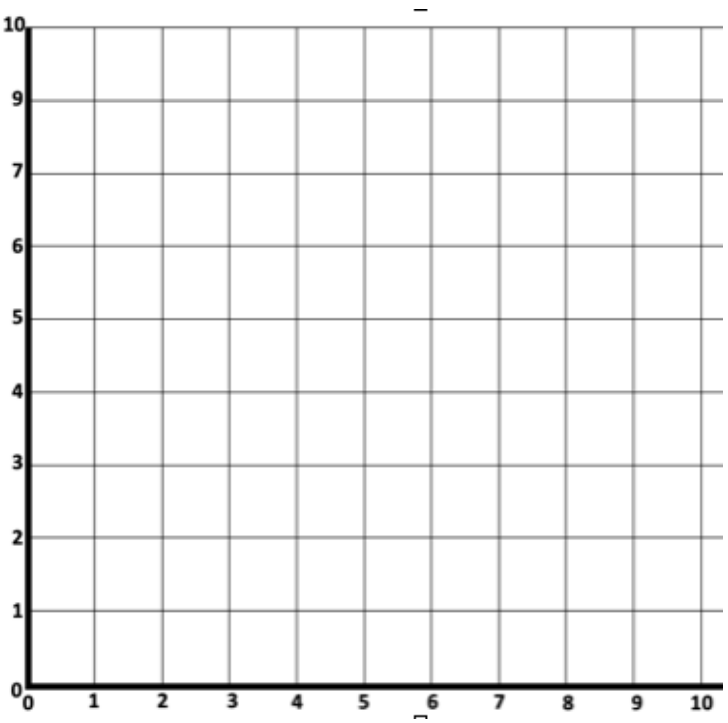
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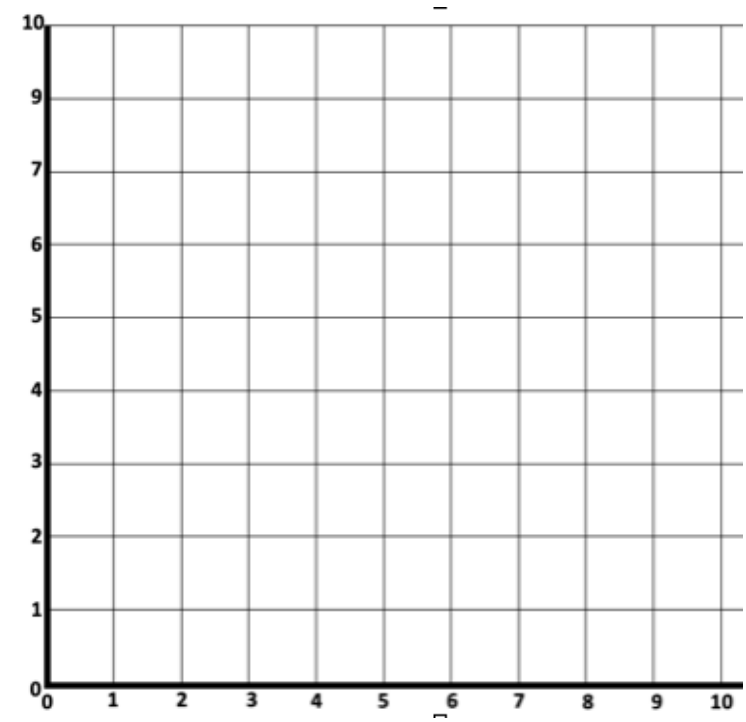
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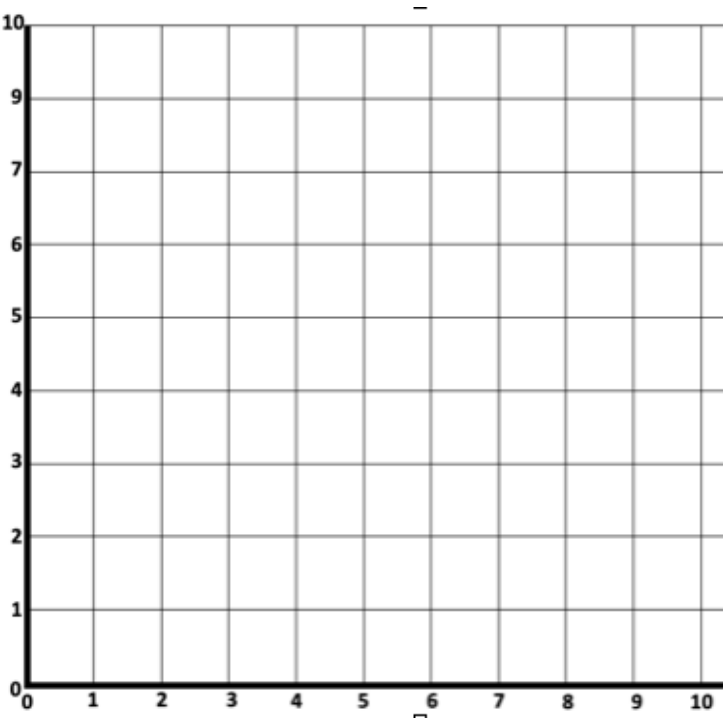
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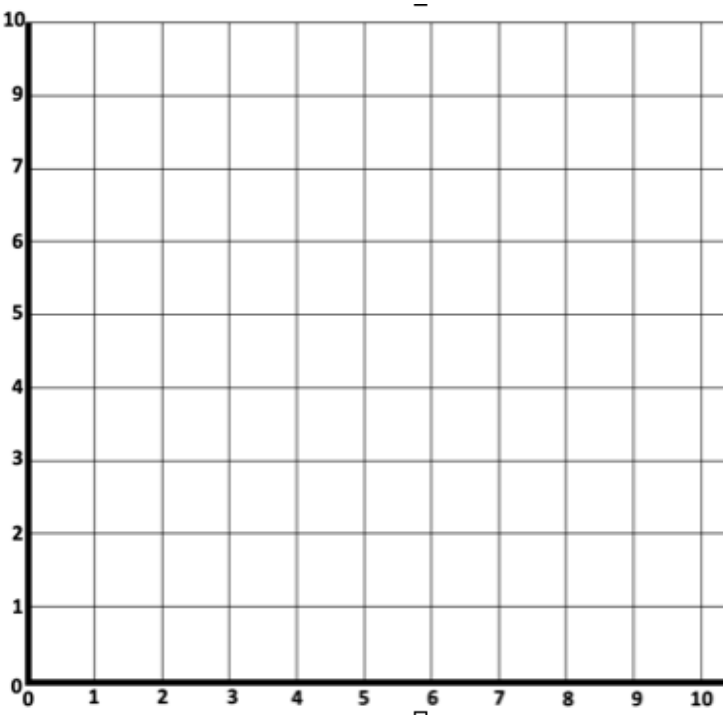
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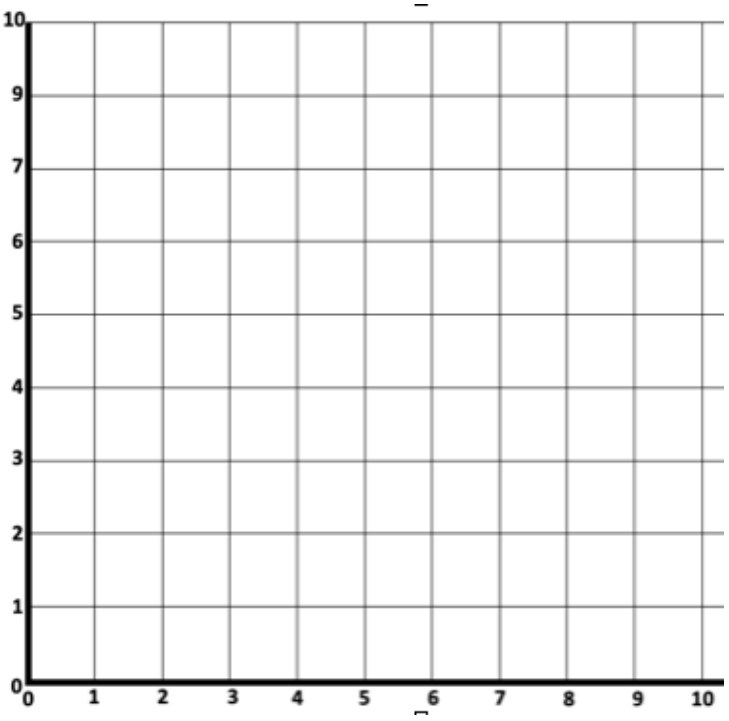
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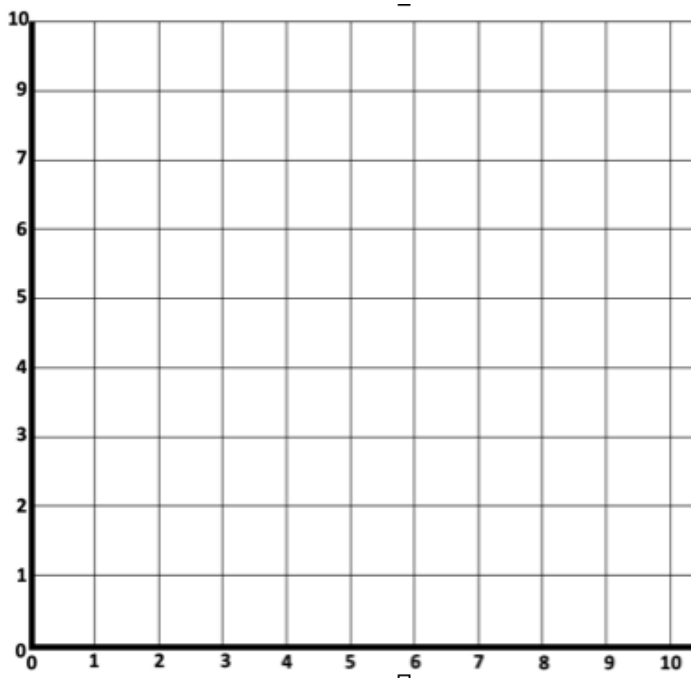
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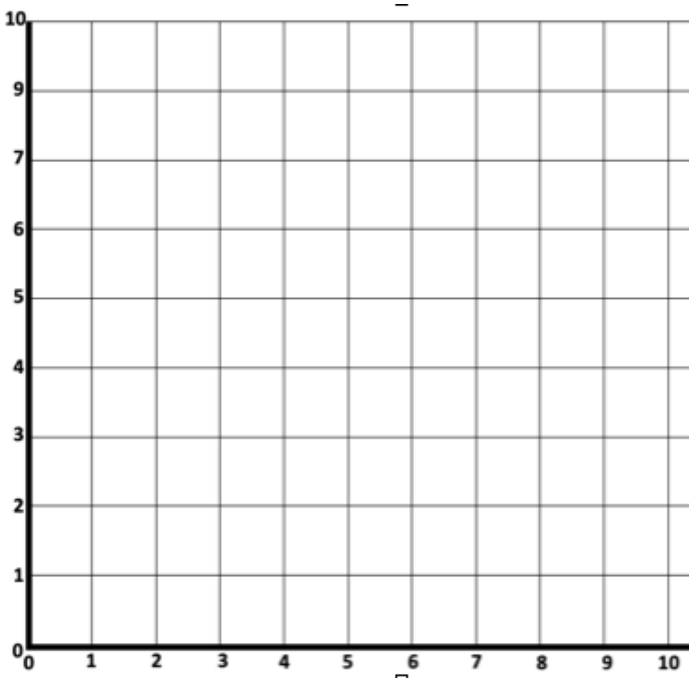
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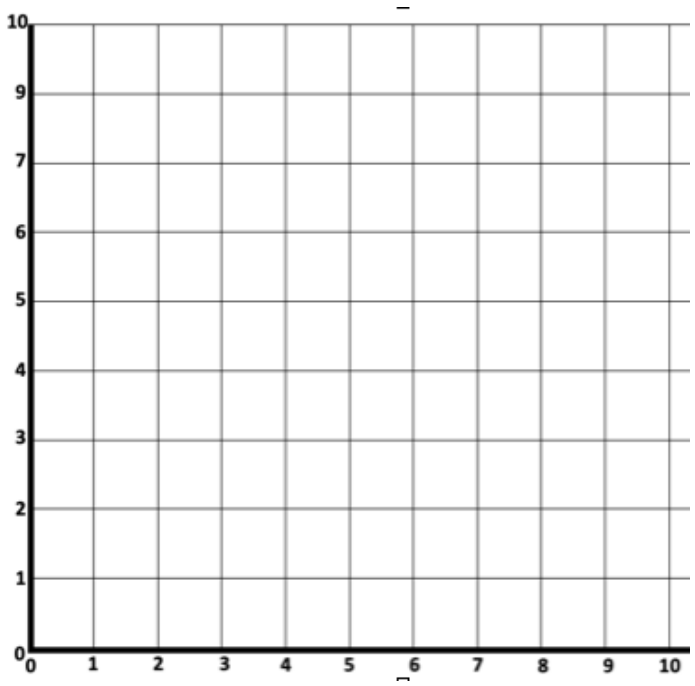
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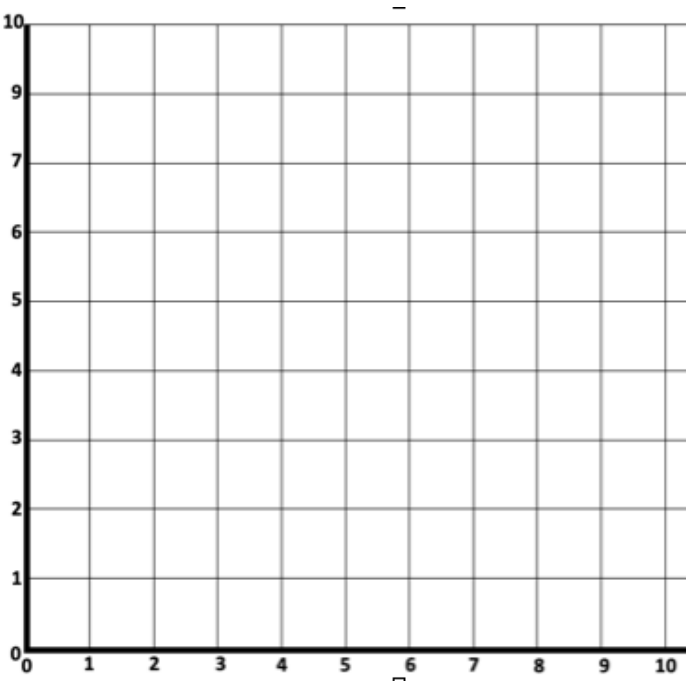
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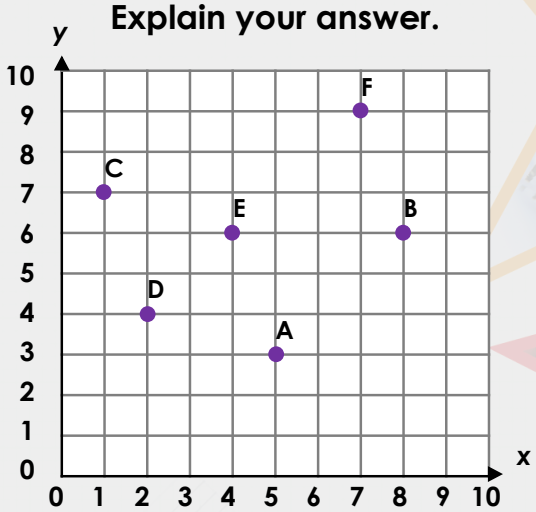
Lesson 3 Remember to explain your answer.

Reasoning 1

I'm thinking of a coordinate. The value of x is between 3 and 6 and the value of y is between 2 and 5. Which coordinate could it be? Explain your answer.



Coordinate A because...

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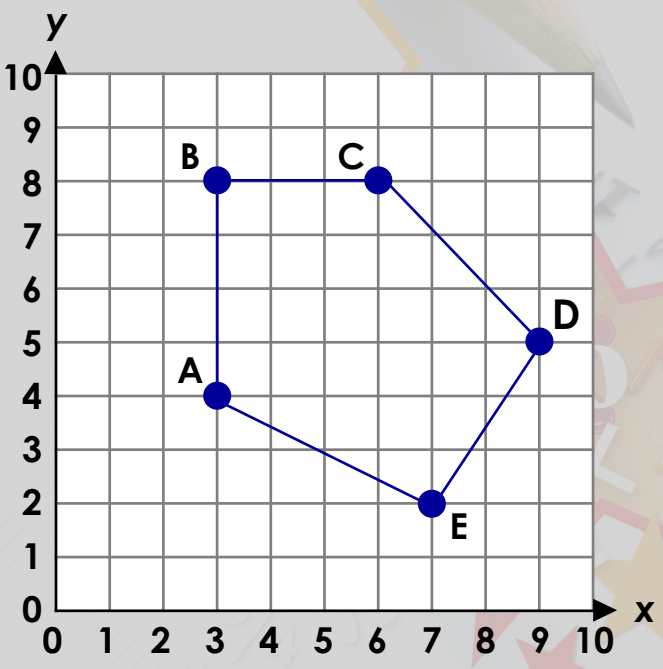
Answer REASONING 1: Coordinate A because it is the only point with an x coordinate between 3 and 6 and a y between 2 and 5.

Problem Solving 1

Billy has written the coordinates for a pentagon. Correct any mistakes he has made.

Billy

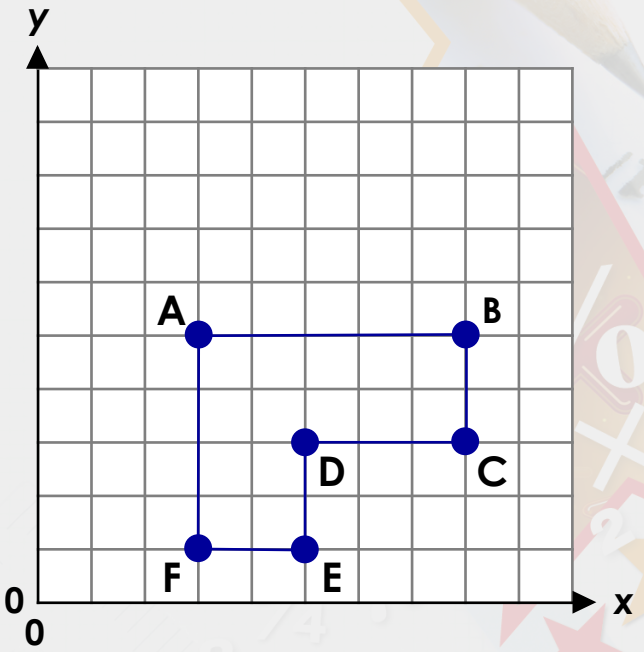
Point A = (4, 3)
Point B = (3, 8)
Point C = (6, 8)
Point D = (9, 5)
Point E = (2, 7)



Problem Solving 2

A = (3, 5), C = (8, 3). Use this information to work out the coordinates of points B, D, E and F.

Point A = (3, 5)
Point B = (,)
Point C = (8, 3)
Point D = (,)
Point E = (,)
Point F = (,)



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Problem Solving 1

Billy has written the coordinates for a pentagon. Correct any mistakes he has made.

Billy read the y axis before the x axis for Points A and E, which should have been (3, 4) and (7, 2).

Billy

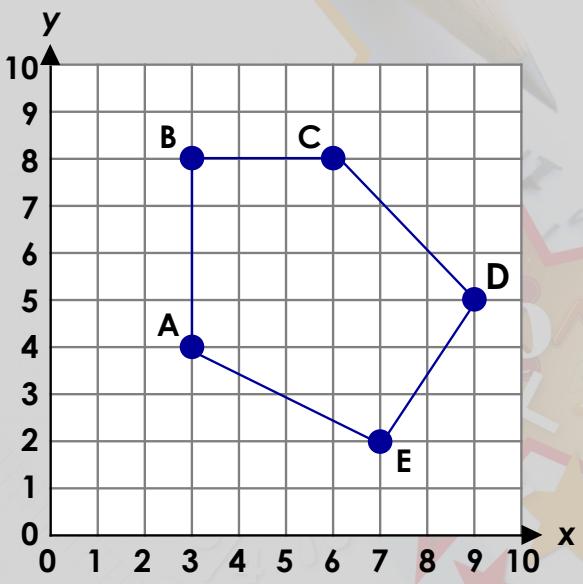
Point A = (3, 4)

Point B = (3, 8)

Point C = (6, 8)

Point D = (9, 5)

Point E = (7, 2)



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Problem Solving 2

A = (3, 5), C = (8, 3). Use this information to work out the coordinates of points B, D, E and F.

Point A = (3, 5)

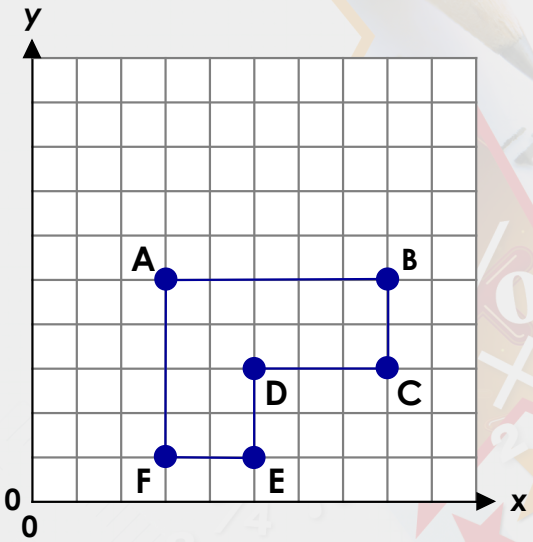
Point B = (8, 5)

Point C = (8, 3)

Point D = (5, 3)

Point E = (5, 1)

Point F = (3, 1)



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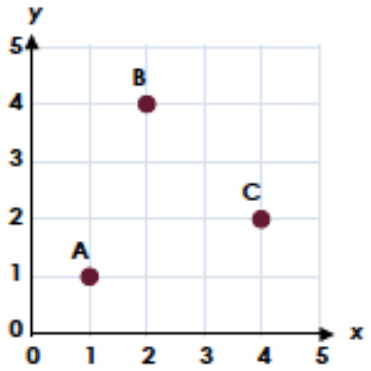
Try these reasoning and problem solving questions. Remember to choose one set of challenges: Developing/Expected/Greater Depth.

Describe Position

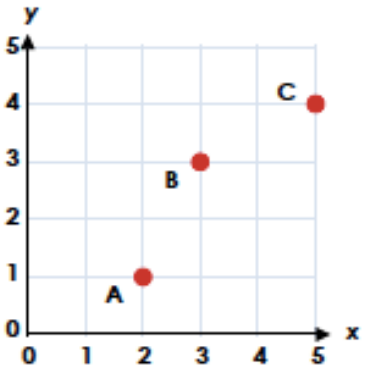
1a. I'm thinking of a coordinate. The value of x is between 2 and 5 and the value of y is between 1 and 3. Which coordinate could it be? Explain your answer.



D R

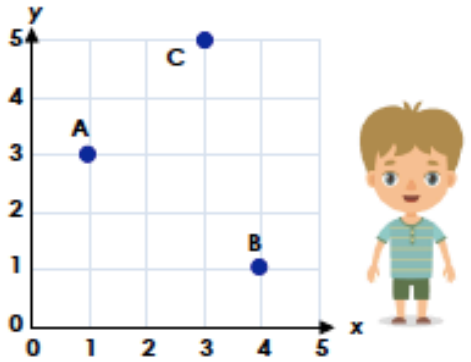
Describe Position

1b. I'm thinking of a coordinate. The value of x is between 2 and 4 and the value of y is between 3 and 5. Which coordinate could it be? Explain your answer.



D R

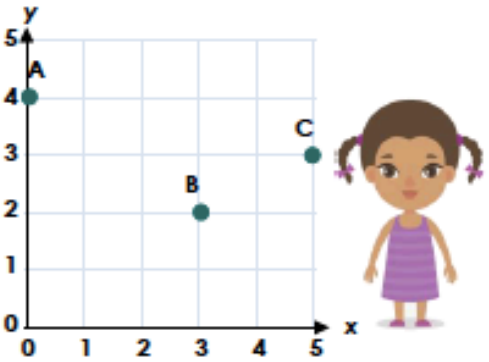
2a. Caleb has written the coordinates for the points on the grid. Correct any mistakes he has made.



A = (1, 3) B = (4, 1) C = (5, 3)

D PS

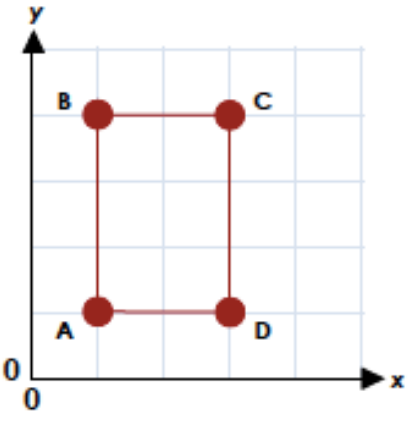
2b. Cara has written the coordinates for the points on the grid. Correct any mistakes she has made.



A = (4, 0) B = (3, 2) C = (5, 3)

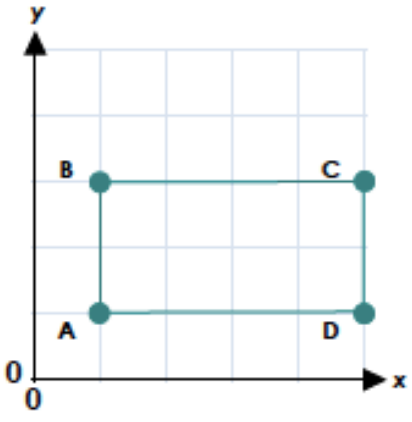
D PS

3a. A = (1, 1) C = (3, 4)
Use this information to work out the coordinates of points B and D.



D PS

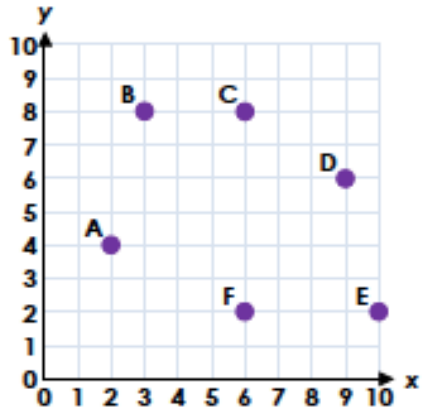
3b. B = (1, 3) D = (5, 1)
Use this information to work out the coordinates of points A and C.



D PS

Describe Position

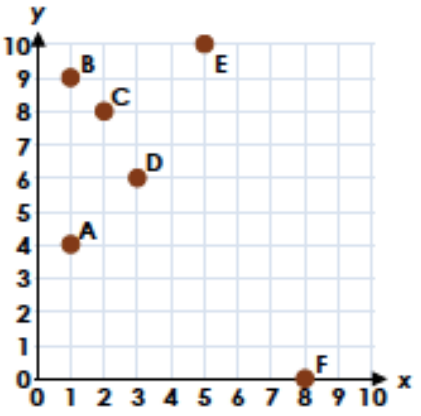
4a. I'm thinking of a coordinate. The value of x is between 3 and 6 and the value of y is between 7 and 9. Which coordinate could it be? Explain your answer.



R

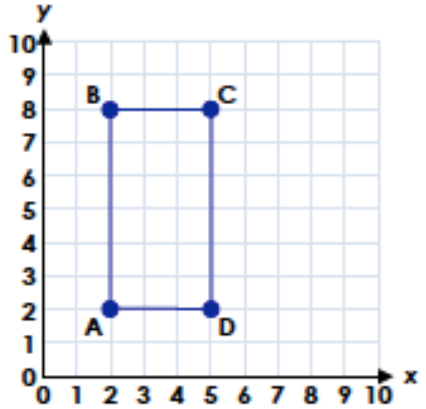
Describe Position

4b. I'm thinking of a coordinate. The value of x is between 2 and 4 and the value of y is between 3 and 6. Which coordinate could it be? Explain your answer.



R

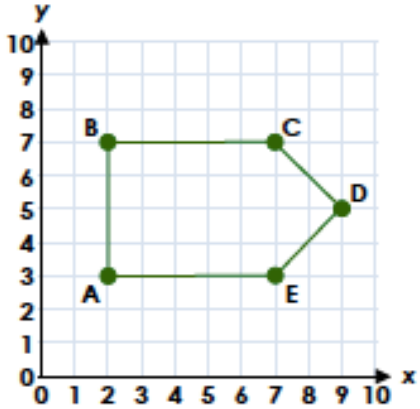
5a. Brandon has written the coordinates for a rectangle. Correct any mistakes he has made.



A = (2, 2) B = (8, 2) C = (4, 8) D = (2, 5)

PS

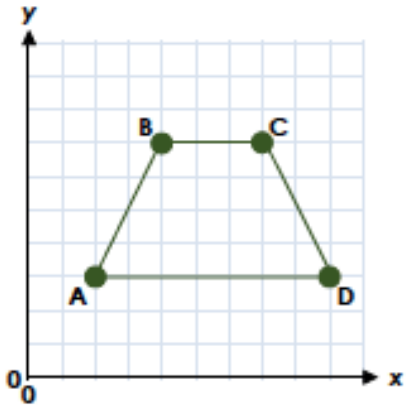
5b. Susie has written the coordinates for a pentagon. Correct any mistakes she has made.



A = (3, 2) B = (2, 7) C = (7, 7)
D = (5, 9) E = (8, 3)

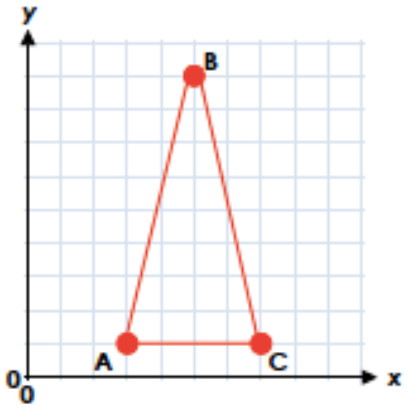
PS

6a. A = (2, 3) C = (7, 7)
Use this information to work out the coordinates of points B and D.



PS

6b. A = (3, 1)
Use this information to work out the coordinates of points B and C.



PS

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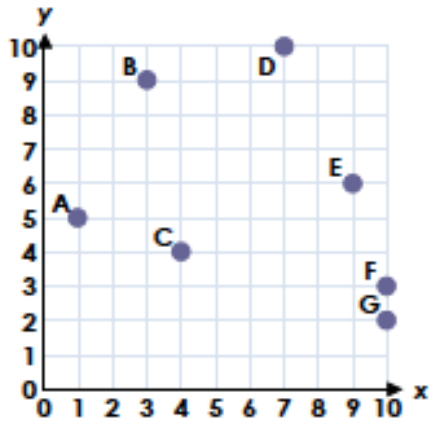
Describe Position

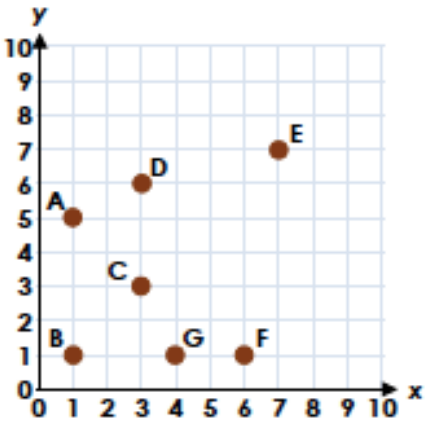
7a. I'm thinking of a coordinate. The value of x is between 3 and 6 and the value of y is between 1 and 6. Which coordinate could it be? Explain your answer.



R

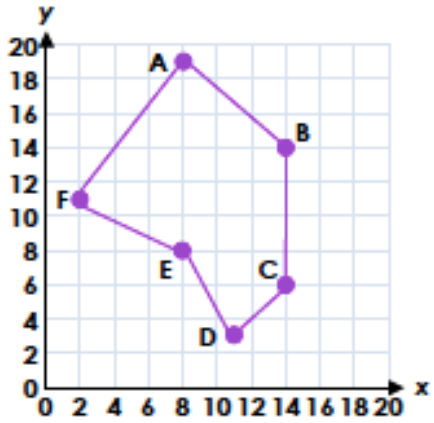
Describe Position

7b. I'm thinking of a coordinate. The value of x is between 0 and 5 and the value of y is between 4 and 7. Which coordinate could it be? Explain your answer.



R

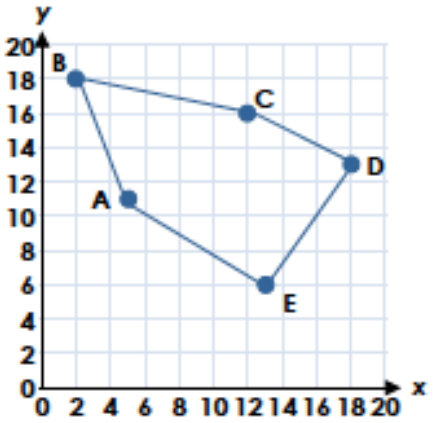
8a. Sally has written the coordinates for a hexagon. Correct any mistakes she has made.



A = (8, 18) B = (14, 14) C = (6, 14)
D = (3, 11) E = (8, 8) F = (2, 11)

PS

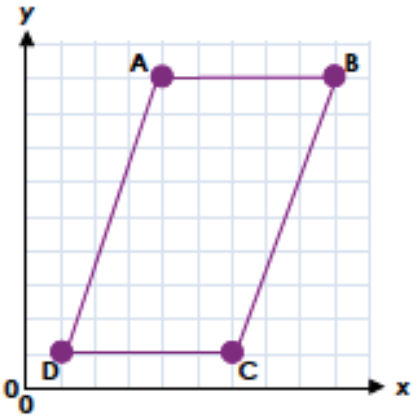
8b. Hashim has written the coordinates for a pentagon. Correct any mistakes he has made.



A = (6, 11) B = (2, 18) C = (16, 12)
D = (18, 12) E = (6, 13)

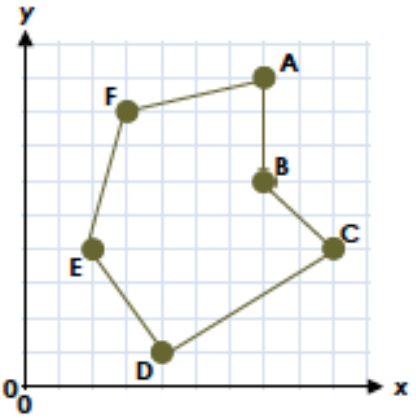
PS

9a. B = (45, 45) D = (5, 5)
Use this information to work out the coordinates of points A and C.



PS

9b. F = (15, 40) C = (45, 20)
Use this information to work out the points of the remaining coordinates.



PS

Reasoning and Problem Solving
Describe Position

Developing

1a. C is the only coordinate that has a value of x between 2 and 5, and a value of y between 1 and 3.

2a. Caleb has read the y axis before the x axis on coordinate C, which should be (3, 5).

3a. B = (1, 4) and D = (3, 1)

Expected

4a. B and C are the only coordinates that have a value of x between 3 and 6, and a value of y between 7 and 9.

5a. Brandon has read the y axis before the x axis on coordinates B and D, which should be (2, 8) and (5, 2). He has misread coordinate C, as this should be (5, 8).

6a. B = (4, 7) and D = (9, 3)

Greater Depth

7a. C is the only coordinate that has a value of x between 3 and 6 and a value of y between 1 and 6.

8a. Sally has misread coordinate A, which should be (8, 19). She has read the y axis before the x axis on coordinates C and D, which should be (14, 6) and (11, 3).

9a. Grid increases in intervals of 5.
A = (20, 45) and C = (30, 5)

Reasoning and Problem Solving
Describe Position

Developing

1b. B is the only coordinate that has a value of x between 2 and 4, and a value of y between 3 and 5.

2b. Cara has read the y axis before the x axis on coordinate A, which should be (0, 4).

3b. A = (1, 1) and C = (5, 3)

Expected

4b. D is the only coordinate that has a value of x between 2 and 4 and a value of y between 3 and 6.

5b. Susie has read the y axis before the x axis on coordinates A and D, which should be (2, 3) and (9, 5). She has misread coordinate E, as this should be (7, 3).

6b. B = (5, 9) and C = (7, 1)

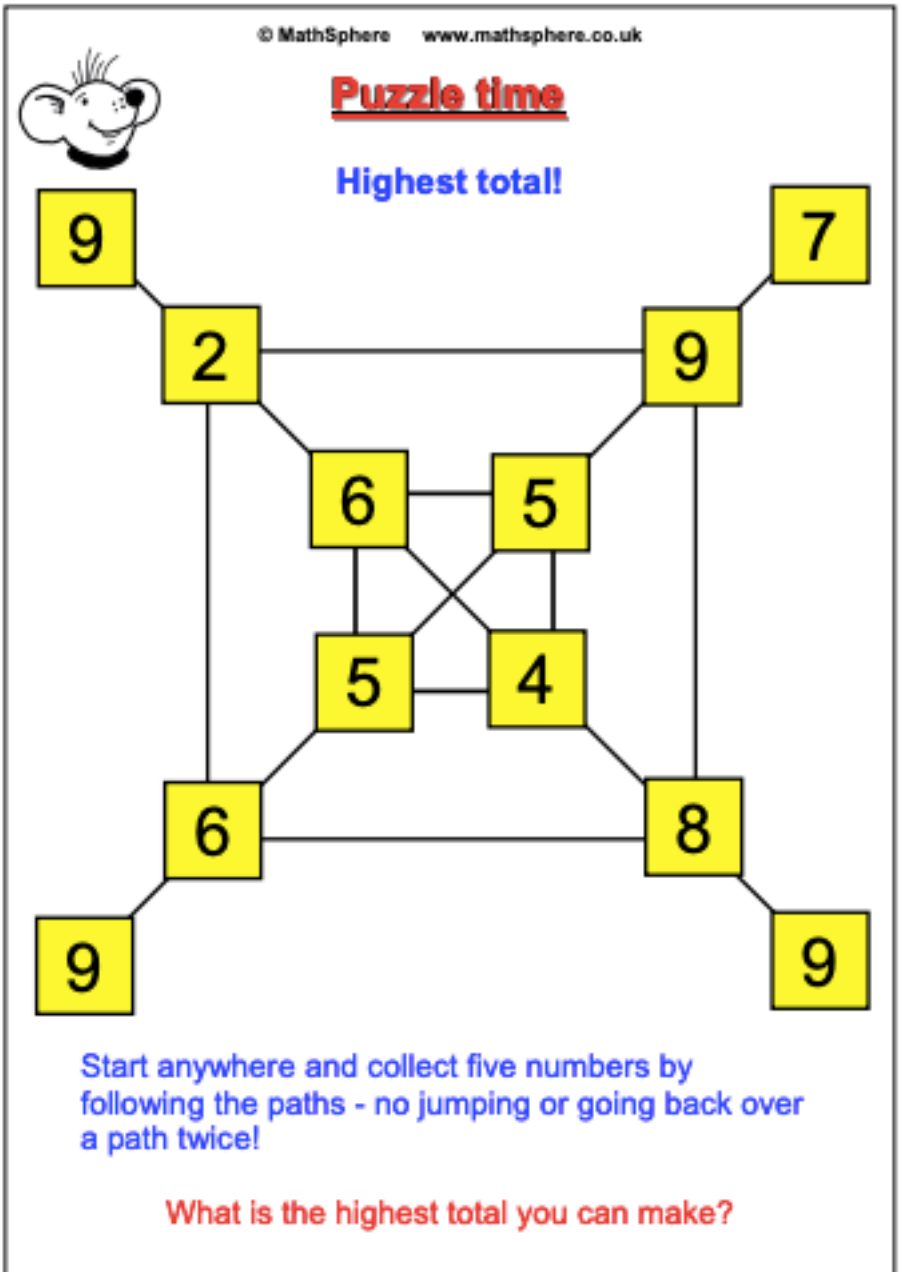
Greater Depth

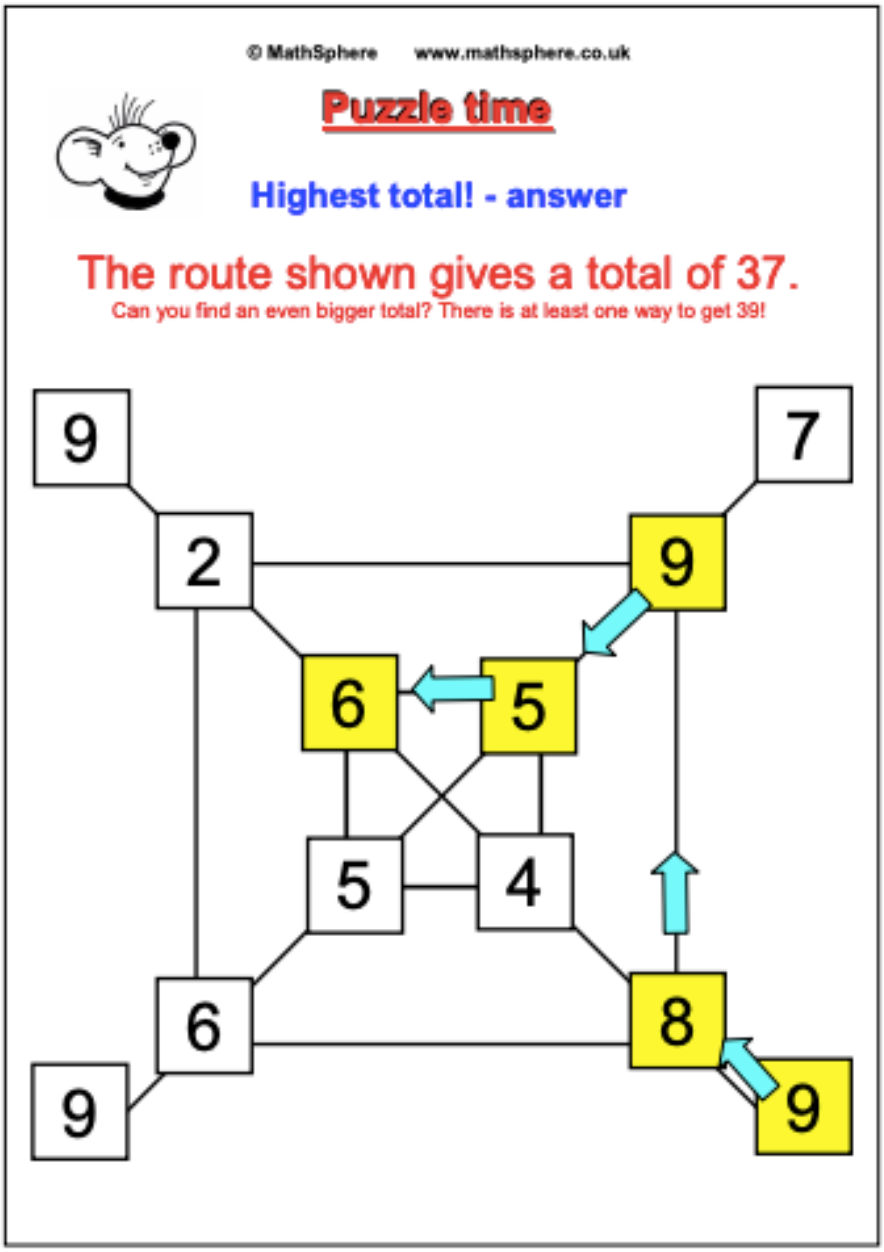
7b. A and D are the only coordinates that have a value of x between 0 and 5, and a value of y between 4 and 7.

8b. Hashim has read the y axis before the x axis on coordinates C and E, which should be (12, 16) and (13, 6). He has misread coordinates A and D, which should be (5, 11) and (18, 13).

9b. Grid increases in intervals of 5.
A = (35, 45), B = (35, 30), D = (20, 5) and E = (10, 20)

This week's puzzle:





Remember to keep on learning times tables.