



Colin and Coco's Daily Maths Workout

Workout 6.7

Properties of Shapes

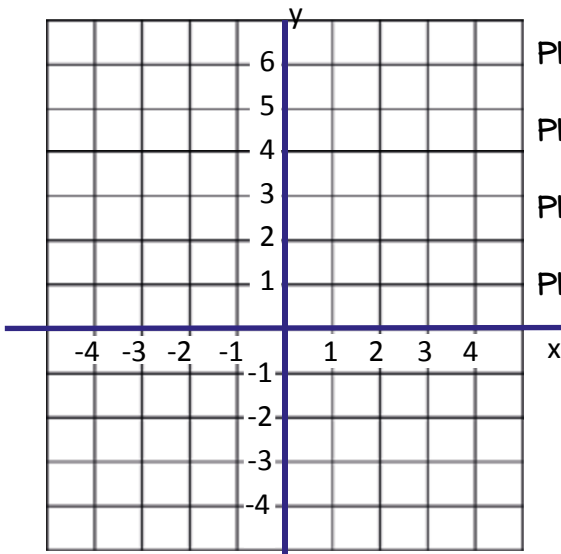




Shape Workout

Plot the points then find the point to finish the shape.

Workout A



Plot $(2, 0)$ $(4, 2)$ $(2, 4)$ then make a square (,)

Plot $(2, 4)$ $(2, 6)$ $(-2, 6)$ then make a rectangle (,)

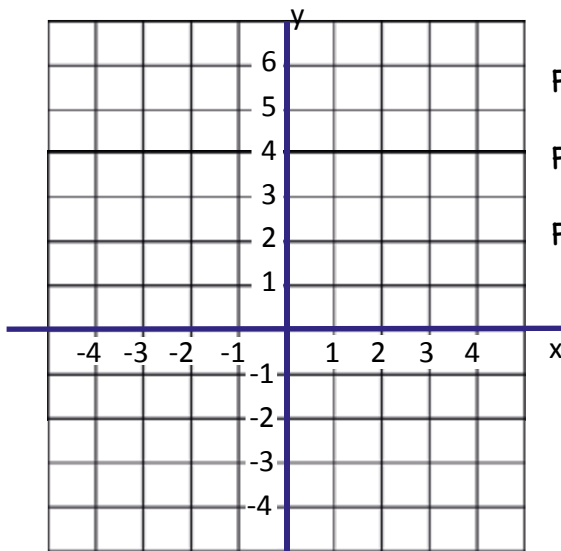
Plot $(-3, -2)$ $(-4, -1)$ $(-3, 3)$ then make a kite (,)

Plot $(-4, -4)$ $(-2, -2)$ $(3, -2)$ then make a parallelogram (,)

Shape Workout

Plot the points then find the point to finish the shape.

Workout B



Plot $(-4, 1)$ $(-4, 4)$ $(-2, 6)$ then make a trapezium (,)

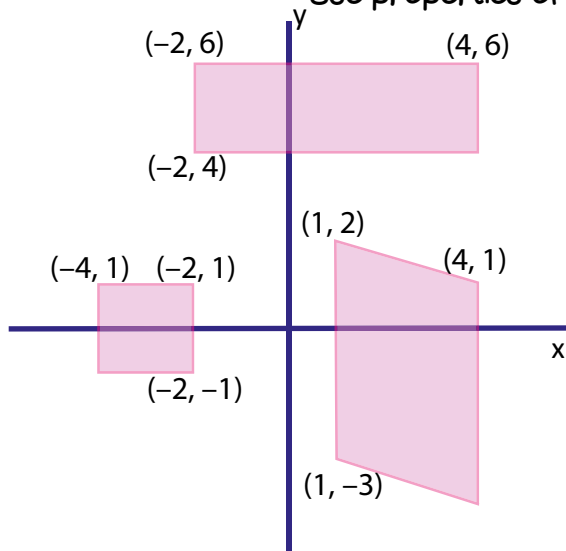
Plot $(-1, 3)$ $(1, 0)$ $(3, 3)$ then make a rhombus (,)

Plot $(3, -2)$ $(-2, -3)$ $(-3, -2)$ then make a kite (,)

Shape Workout

Workout C

Use properties of shapes to calculate the missing coordinates.



1. Rectangle: Missing coordinate is (,)

2. Square: Missing coordinate is (,)

3. Parallelogram: Missing coordinate is (,)



Coordinate Challenge Game

Workout D

You need:

- Coordinate cards (on the next page)
- Coordinate Challenge Board (on the next page)
- A different coloured pencil for each player

To play:

- Shuffle the cards and put them face down on the table.
- Take turns to turn over two cards.
- Use the numbers to make the coordinates of a point.
- Plot your point on the grid.

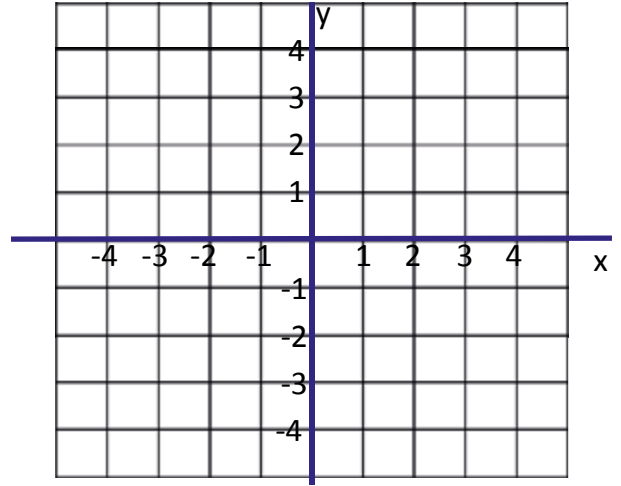
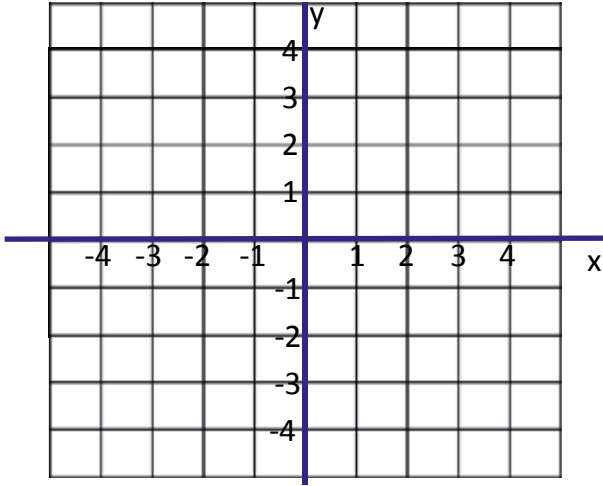
I have turned over 3 and -2 so could plot $(3, -2)$ or
I could plot $(-2, 3)$

To win:

The winner is the first player to plot three points in a straight line, horizontally or vertically. The three points do not have to be right next to each other.



Coordinate Challenge Board



-4

-3

-2

-1

0

1

2

3

4



Missing Number Workout

Workout E

Colin is making shapes by plotting points on a coordinate grid.
Place digits in the empty boxes to complete the sets of
coordinates in several ways.

Square $(3, 3)$ (\square, \square) $(6, 6)$ (\square, \square)

Parallelogram $(5, 2)$ (\square, \square) $(6, 5)$ (\square, \square)

Right-Angled
Triangle $(1, 2)$ (\square, \square) $(5, 4)$

Are there any boxes that it is impossible to put a 5 in?
Why?

Are there any boxes that could have any of the digits in them?

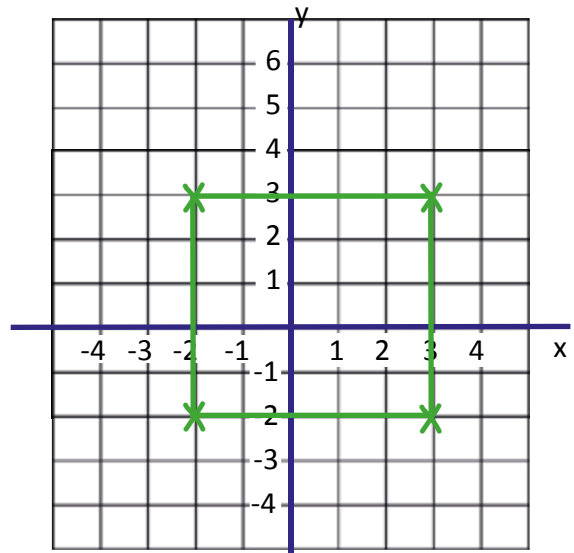
Now complete all the coordinates together using the digits
0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 once each.



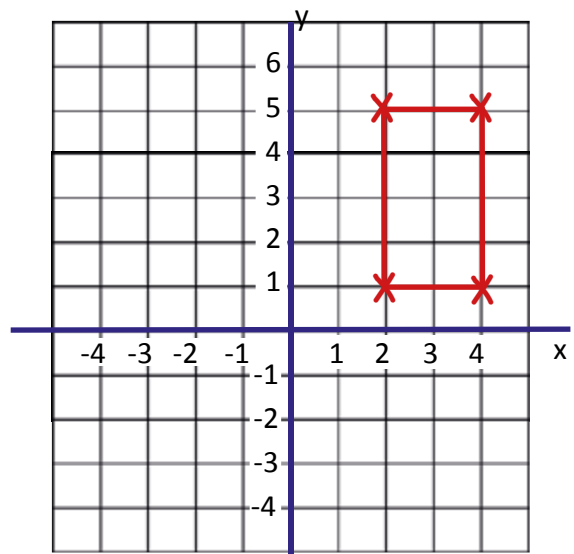
Quad Quads

Quad Quads are quadrilaterals that are only allowed to have one vertex in each quadrant.

This is a Quad Quad



This is not a Quad Quad



Find sets of coordinates that will make a:

Square
Trapezium

Parallelogram
Rhombus

Kite



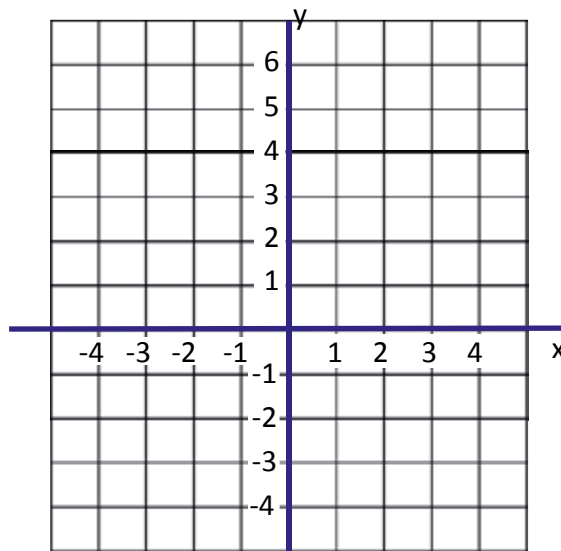
1. The vertices of a square have coordinates $(1,1)$, $(1,4)$, $(5,4)$ and (a,b) .

Find the values of a and b .

2. The vertices of a right-angled triangle have coordinates $(2,y)$, $(2,-4)$ and $(-4,-4)$.

Find the value of y .

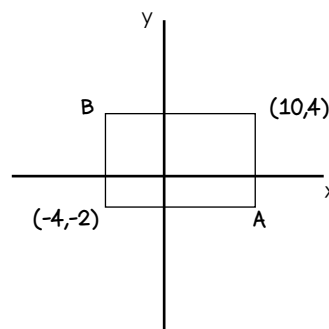
3. Two vertices of a square have coordinates $(-3,4)$ and $(3,4)$. How many different squares can be made by plotting 2 more points?



4. The vertices of a rectangle ABCD are A $(-2,3)$, B $(-2,2)$, C $(2,2)$ and D $(-2,2)$.

Find the coordinates of a rectangle with one vertex at A but twice as large.

5. Find the coordinates of A and B.





Who am I? Workout

Use the clues to work out Colin's mystery number.

You may want to cross numbers out on the 100 grid as you consider each clue.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- 1) I am even
- 2) I am not a factor of 30
- 3) I am not a cube number
- 4) I am not a multiple of 10
- 5) My digits are not equal
- 6) Only one of my digits is prime
- 7) I am not a square number
- 8) I am not a multiple of 8
- 9) The sum of my digits is a prime number
- 10) The difference in my digits is 7

Colin's mystery number is

Create your own 'Who am I?' puzzle

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Please share your puzzle with Colin @MathsCanDo