



Colin and Coco's Daily Maths Workout

Workout 6.7

Properties of Shapes

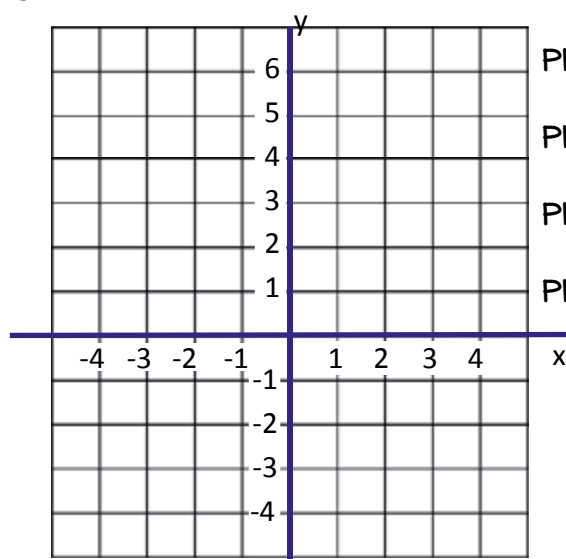




Shape Workout

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 (,)

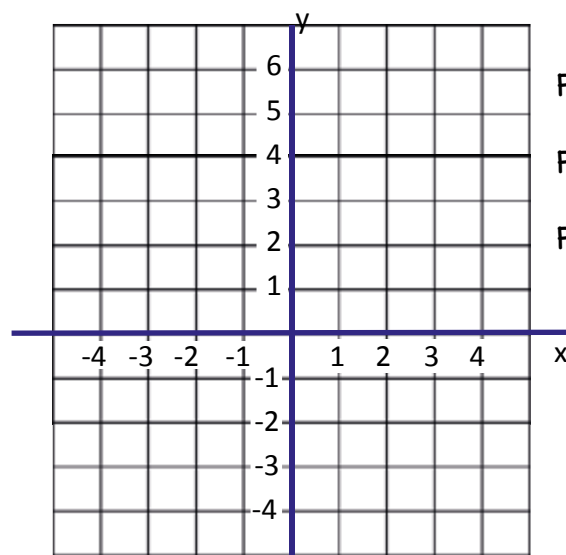
Plot $(-3, -2)$ $(-4, -1)$ $(-3, 3)$ then make a kite (,)

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



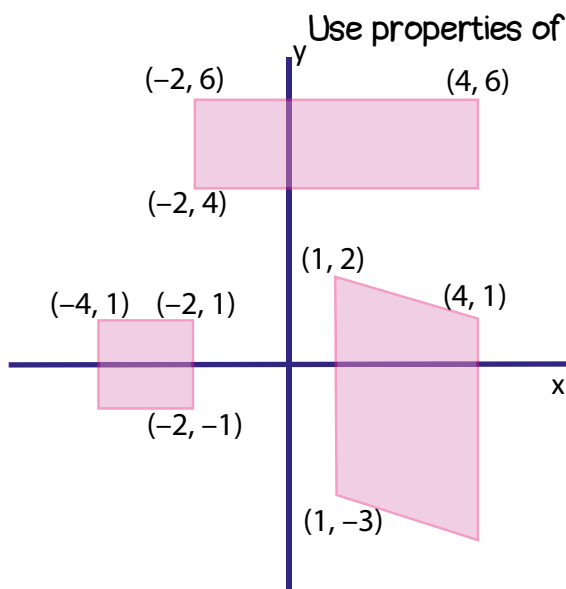
Plot $(-4, 1)$ $(-4, 4)$ $(-2, 6)$ then make a trapezium (,)

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.

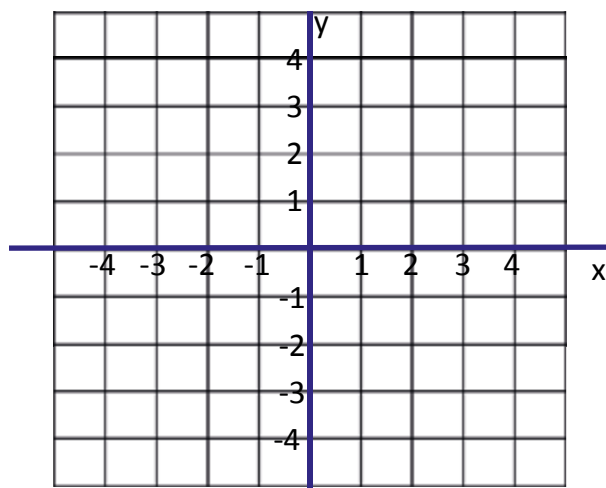
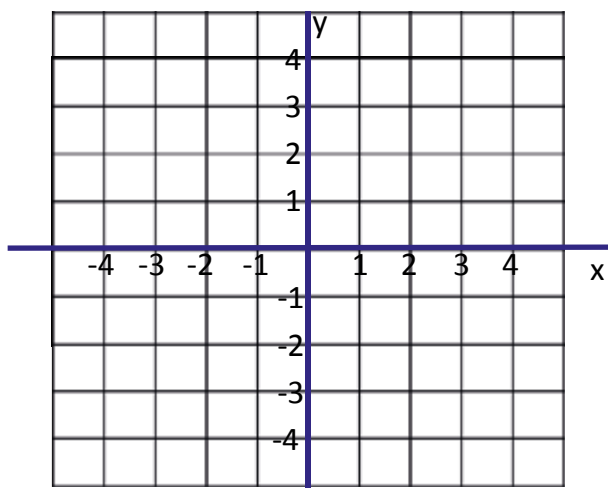
I have turned over 3 and -2 so could plot $(3, -2)$ or
I could plot $(-2, 3)$

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.

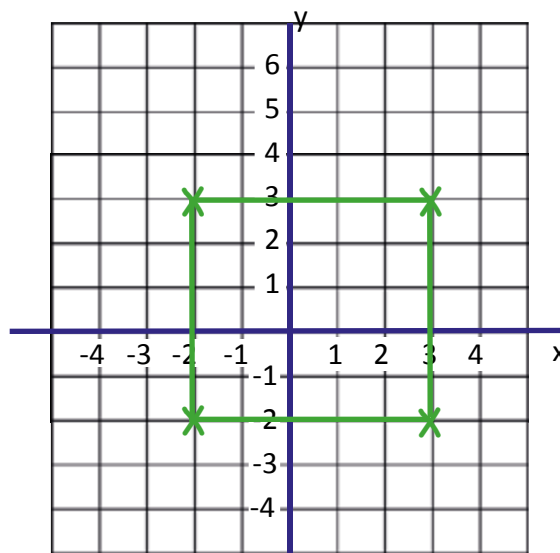


Quad Quads

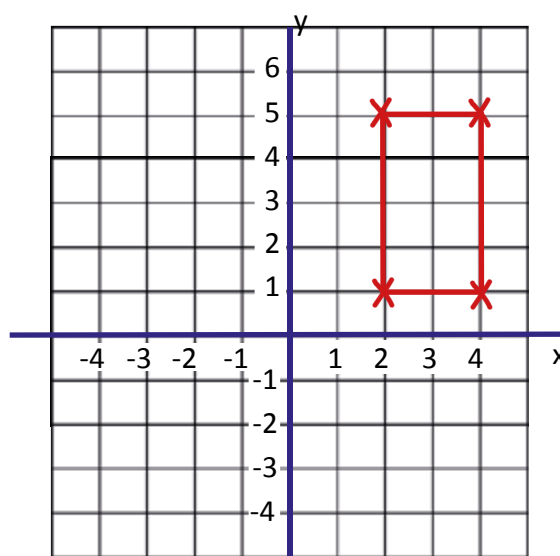
Workout F

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



Word Problems

Workout G

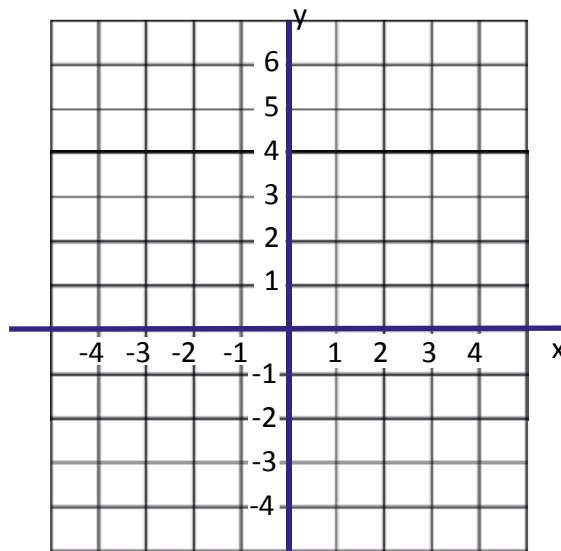
1. The vertices of a square have coordinates $(1,1)$, $(1,4)$, $(5,4)$ and (a,b) .

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 .

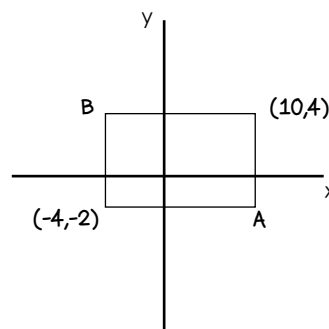
3. Two vertices of a square have coordinates $(-3,4)$ and $(3,4)$.
How many different squares can be made by plotting 2 more points?



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

Workout H

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