

## Yr 6 Shape Unit 2 (6247)

### Additional teacher instructions for practice sheets

These notes indicate which practice sheets are most appropriate for which groups.

#### Day 1 Hunt the Vertices! Sheet 1

Working towards ARE complete first 5 and answer question (a).

Working at ARE complete all 8 and answer question (a).

Greater Depth complete whole sheet.

#### Day 2 Translated quadrilaterals Sheet 1

Working towards ARE complete questions 1 to 5 and the challenge.

Working at ARE / Greater Depth complete whole sheet.

#### Day 3 Reflecting quadrilaterals Sheet 1

Working towards ARE complete first three.

Working at ARE complete second three.

#### Day 3 Reflected quadrilaterals Sheet 2

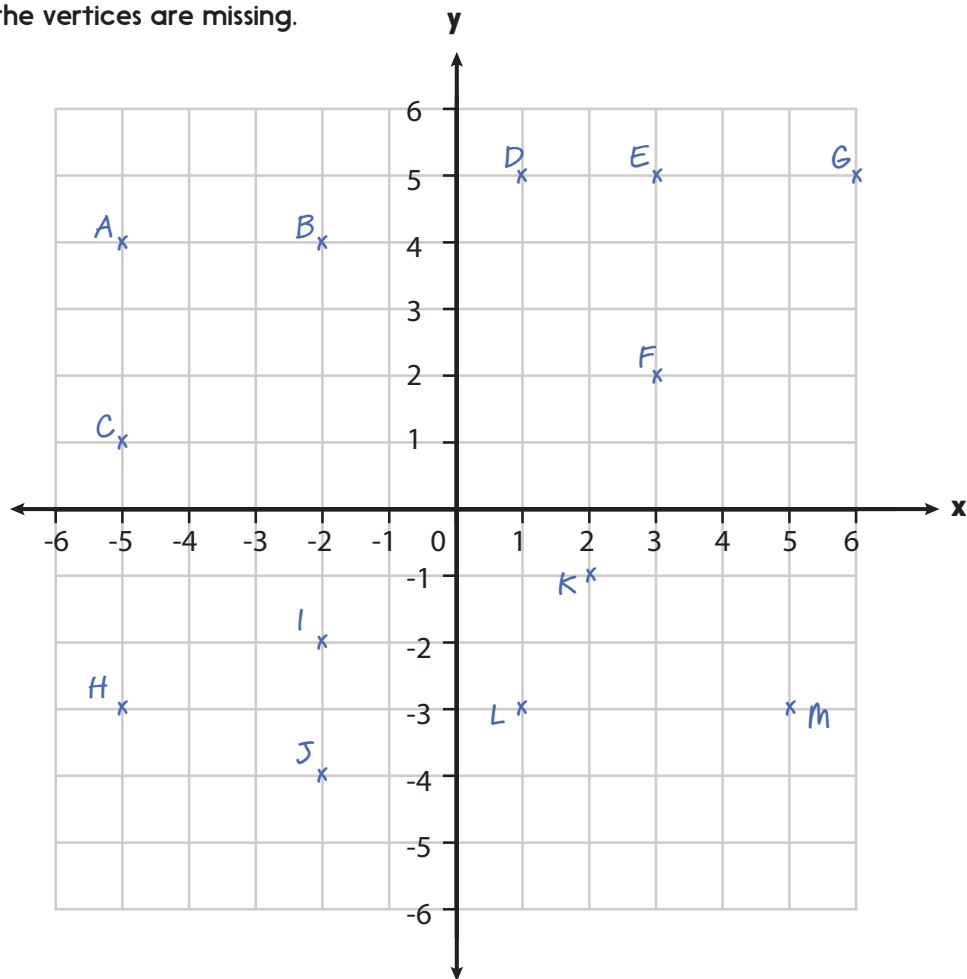
Working at ARE / Greater Depth

Greater Depth should attempt the challenge.

# Hunt the vertices!

## Sheet 1

All the points shown are vertices of different quadrilaterals that fit on the 6 x 6 grid, but some of the vertices are missing.



Plot any missing vertices in each shape. Write their co-ordinates.

Use a ruler to draw each quadrilateral.

1. The square with vertices A, B, C and ?
2. The rectangle with vertices D, E, F and ?
3. The square with vertices D, G, and ?  
And ?
4. The trapezium with a long side measuring 4 squares, and vertices E, F, G and ?
5. The parallelogram with vertices K, L, M and ?
6. One of the three possible parallelograms with vertices H, I, J and ?
7. The rectangle with vertices A, H, M and ?
8. The isosceles trapezium with vertices J, K, L and ?

Answer these questions:

- (a) What is the perimeter of the square in (3)?
- (b) Draw the diagonals in the parallelogram drawn in (5). What are the co-ordinates of the point where these cross?

### Challenge

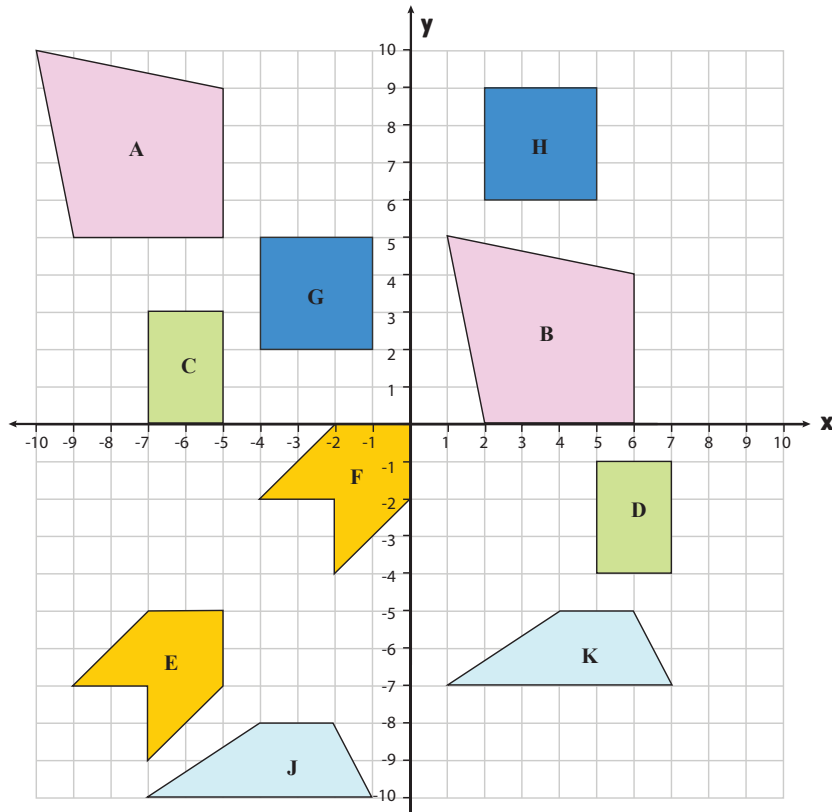
Draw five different types of quadrilateral on a similar 6 x 6 grid and write the co-ordinates of each one.

# Translated quadrilaterals

## Sheet 1

Write the translation for each of these shapes.

Write the number of squares it moves along (x) and the number of squares it moved up/down (y), e.g. a shape might move along 3 squares to the right and 4 squares down.



- Shape A moves [ ] squares along to the \_\_\_\_\_ and [ ] squares \_\_\_\_\_.
- Shape C moves [ ] squares along to the \_\_\_\_\_ and [ ] squares \_\_\_\_\_.
- Shape E moves [ ] squares along to the \_\_\_\_\_ and [ ] squares \_\_\_\_\_.
- Shape G moves [ ] squares along to the \_\_\_\_\_ and [ ] squares \_\_\_\_\_.
- Shape J moves [ ] squares along to the \_\_\_\_\_ and [ ] squares \_\_\_\_\_.

Which pair of shapes have a translation of 11 horizontally?

Which pair of shapes have a translation of 3 vertically?

Which pair of shapes have the greatest translation horizontally?

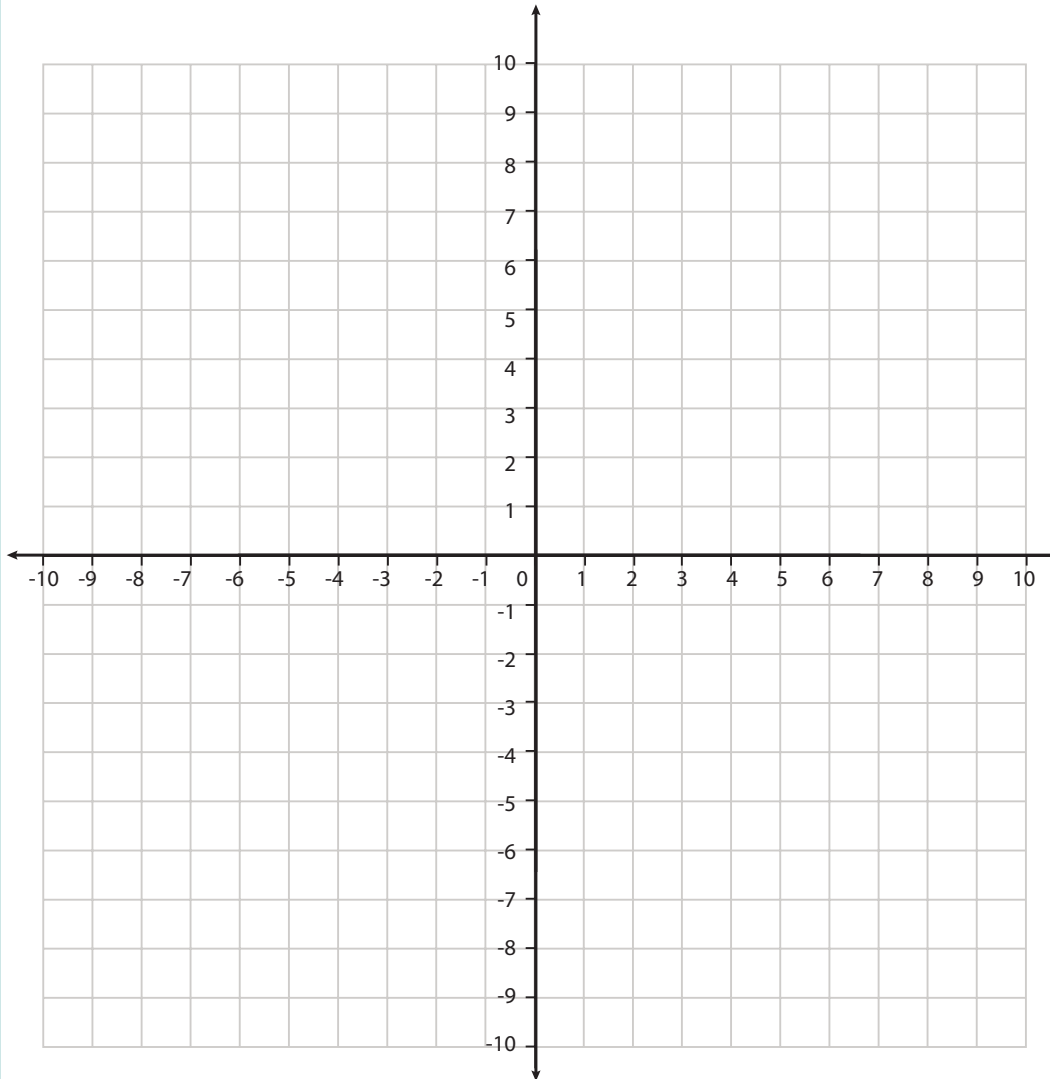
### Challenge

Draw a quadrilateral in the bottom left quadrant.  
Translate it to the top right quadrant and re-draw it.  
Write the translation.

# Reflecting quadrilaterals

## Sheet 1

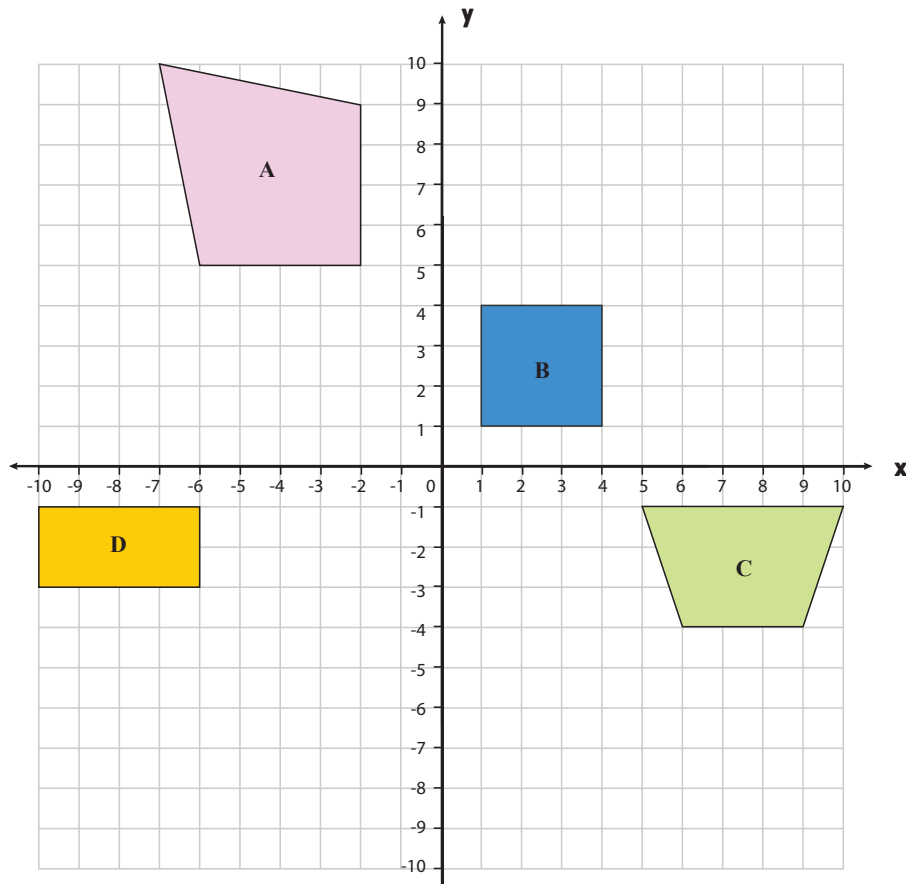
Plot each quadrilateral and its image. Write down the coordinates of the vertices of the image.



Shape	Coordinates of vertices	Reflected in	Coordinates of vertices of image
Square	A (-7, 2) B (-5, 2) C (-7, 0) D (-5, 0)	x-axis	A ( , ) B ( , ) C ( , ) D ( , )
Rectangle	E (-9, 9) F (-4, 9) G (-9, 7) H (-4, 7)	y-axis	E ( , ) F ( , ) G ( , ) H ( , )
Rhombus	I (-4, 2) J (-2, 3) K (-2, 1) L (0, 2)	x-axis then y-axis	I ( , ) J ( , ) K ( , ) L ( , )
Parallelogram	M (-5, 4) N (-4, 6) O (-2, 4) P (-1, 6)	y-axis then x-axis	M ( , ) N ( , ) O ( , ) P ( , )
Trapezium	Q (-9, 3) R (-8, 6) S (-7, 6) T (-6, 3)	x-axis then y-axis	Q ( , ) R ( , ) S ( , ) T ( , )
Kite	U (-3, 8) V (-2, 9) W (-2, 6) X (-1, 8)	y-axis then x-axis	U ( , ) V ( , ) W ( , ) X ( , )

# Reflected quadrilaterals

## Sheet 2



Look at each quadrilateral and write its name.  
Write its co-ordinates.

1. Reflect shapes A then B in the y-axis. Write the co-ordinates of the reflected shapes.
2. Reflect shapes C then D in the x-axis. Write the co-ordinates of the reflected shapes.

### Challenge

Draw a quadrilateral with no right angles and no parallel sides.

Write its co-ordinates.

Write the co-ordinates the shape will have after being reflected in the y-axis.

Reflect the shape in the y-axis.

Were your co-ordinates correct?

# Shape Answers

## Day 1 Hunt the vertices Sheet 1

1. The square with vertices A, B, C and  $(-2, 1)$
2. The rectangle with vertices D, E, F and  $(1, 2)$
3. The square with vertices D, G and  $(1, 0)$  And  $(6, 0)$
4. The trapezium with a long side measuring 4 squares, and vertices E, F, G and  $(6, 1)$
5. The parallelogram with vertices K, L, M and  $(6, -1)$
6. One possible parallelogram has a fourth vertex H, I, J and  $(-5, -5)$  another has a fourth vertex  $(-5, -1)$  and the other  $(1, -3)$
7. The rectangle with vertices A, H, M and  $(5, 4)$
8. The isosceles trapezium with vertices J, K, L and  $(-4, 3)$

(a) The perimeter of the square in (3) is 20 squares.

(b) The diagonals cross at  $(3.5, -2)$

## Day 2 Translated quadrilaterals Sheet 1

1. Shape A moves 11 squares along to the right and 5 squares down.
2. Shape C moves 12 squares along to the right and 4 squares down.
3. Shape E moves 5 squares along to the right and 5 squares up.
4. Shape G moves 6 squares along to the right and 4 squares up.
5. Shape J moves 8 squares along to the right and 3 squares up.

Which pair of shapes have a translation of 11 horizontally? A and B

Which pair of shapes have a translation of 3 vertically? J and K

Which pair of shapes have the greatest translation horizontally? C and D

# Shape Answers

## Day 3 Reflecting quadrilaterals Sheet 1

Shape	Coordinates of vertices	Reflected in	Coordinates of vertices of image
Square	A (-7, 2) B (-5, 2) C (-7, 0) D (-5, 0)	x-axis	A (-7, -2) B (-5, -2) C (-7, 0) D (-5, 0)
Rectangle	E (-9, 9) F (-4, 9) G (-9, 7) H (-4, 7)	y-axis	E (9, 9) F (4, 9) G (9, 7) H (4, 7)
Rhombus	I (-4, 2) J (-2, 3) K (-2, 1) L (0, 2)	x-axis then y-axis	I (4, -2) J (2, -3) K (2, -1) L (0, -2)
Parallelogram	M (-5, 4) N (-4, 6) O (-2, 4) P (-1, 6)	y-axis then x-axis	M (5, -4) N (4, -6) O (2, -4) P (1, -6)
Trapezium	Q (-9, 3) R (-8, 6) S (-7, 6) T (-6, 3)	x-axis then y-axis	Q (9, -3) R (8, -6) S (7, -6) T (6, -3)

## Day 3 Reflected quadrilaterals Sheet 2

### A Quadrilateral

(-2, 5), (-2, 9), (-6, 5), (-7, 10)

Reflection in y-axis: (2, 5), (2, 9), (6, 5), (7, 10)

### B Square

(1, 1), (1, 4), (4, 1), (4, 4)

Reflection in y-axis: (-1, 1), (-1, 4), (-4, 1), (-4, 4)

### C Trapezium

(5, -1), (10, -1), (6, -4), (9, -4)

Reflection in x-axis: (5, 1), (10, 1), (6, 4), (9, 4)

### D Rectangle

(-6, -1), (-6, -3), (-10, -1), (-10, -3)

Reflection in x-axis: (-6, 1), (-6, 3), (-10, 1), (-10, 3)