Challenge 1

- 1. Label the vertices: F(-2, 8) U(-4, 6) N(-2, 2)
- 2. Reflect across the y-axis
- 3. Translate 6 units right and 1 unit up
- 4. Reflect across the x-axis

Challenge 2

- 1. Label the vertices: M(5, -7) E(5, -4) I(7, -2) G(9, -4) S(9, -7)
- 2. Rotate 180° around the origin
- 3. Reflect across the y-axis
- 4. Reflect across the x-axis

Challenge 3

- 1. Label the vertices: K(-8, 2) I(-7, 4) T(-4, 2) E(-5, -2)
- 2. Reflect across the x-axis
- 3. Rotate 90° counterclockwise around the origin
- 4. Translate using (x + 2, y + 5)

Challenge 4 (be very careful on this one! It's easy to mix up the letters!)

- 1. Graph the rectangle: W(-3, 6) I(-3, 8) O(3, 8) A(3, 6)
- 2. Translate 4 units left and 1 unit down
- 3. Reflect across the y-axis
- 4. Rotate 90° clockwise around the origin
- 5. Reflect across the line x = 2

Challenge 5

- 1. Graph the triangle: P(-1, 1) U(-1, 3) G(3, 3)
- 2. Reflect across the line x = -3.
- 3. Reflect across the line y = -3.
- 4. Reflect across the line x = -1.
- 5. Rotate 450° counterclockwise.

Challenge 6 (challenge – should attempt!)

- 1. Label the vertices of the rectangle: A(-1, 5) B(-1, 7) C(3, 7) D(3, 5)
- 2. Reflect ABCD across the line y = x. (This is the diagonal line graphed on the page)
- 3. Label the vertices of the quadrilateral: E(-5, -7) F(-5, -9) G(3, -5) H(-2, -5) and reflect it across y = x.

Challenge 7 (challenge – should attempt!)

• Triangle ABC was rotated 90° counterclockwise about the origin, then translated 3 units right and 7 units up. The vertices of the **image** are A''(7, 6); B''(7, 2); C''(5, 2). Try to work backwards to find out the original location of triangle ABC.