MEMORANDUM

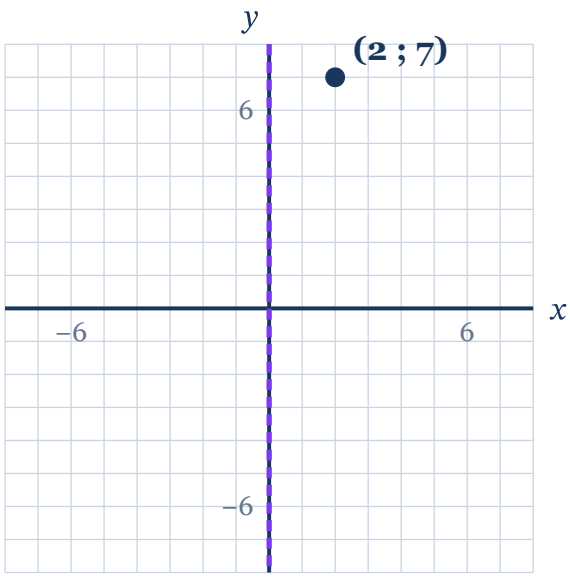
Name: ..... Class: .....

Date: .....

MARK ____ / 20

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

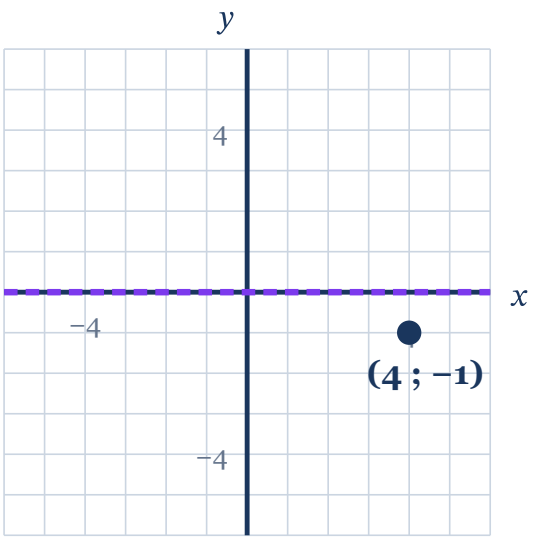
1 Reflect $(2\ ;\ 7)$ in the y-axis. *(reflect)* (1)



reflect in the y-axis (dashed)

$(-2\ ;\ 7)$ ✓ (1)

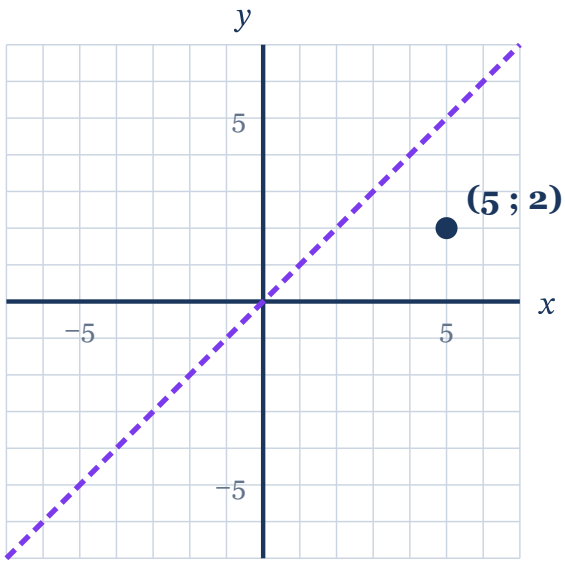
2 Reflect $(4\ ;\ -1)$ in the x-axis. *(reflect)* (1)



reflect in the x-axis (dashed)

(4 ; 1) ✓ (1)

3 Reflect $(5\ ;\ 2)$ in the line $y = x$. *(reflect)* (1)



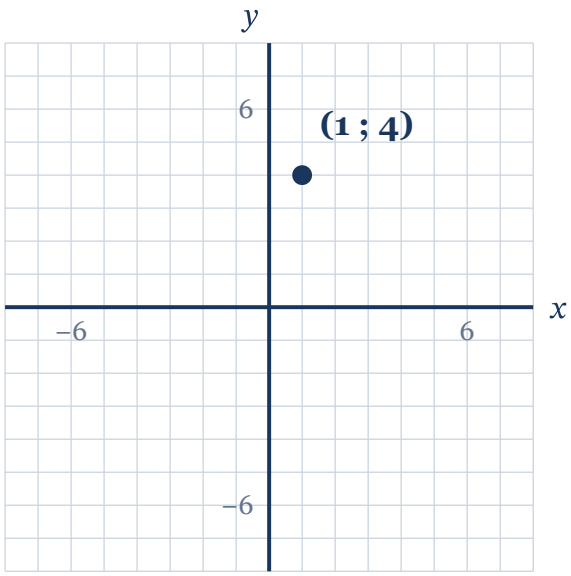
reflect in the line $y = x$ (dashed)

(2 ; 5) ✓ (1)

4 Reflect $(-3\ ;\ 6)$ in the y-axis. *(reflect)* (1)

(3 ; 6) ✓ (1)

5 Translate $(1\ ;\ 4)$ by 5 right and 2 up. *(translate)* (1)



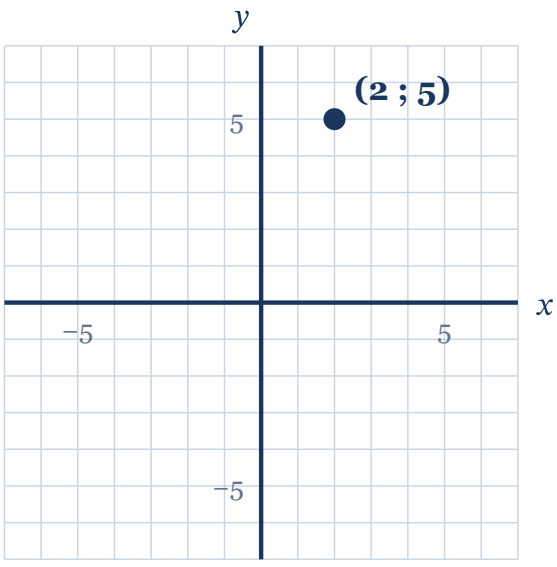
translate 5 right, 2 up

$(1 + 5\ ;\ 4 + 2) =$ **(6 ; 6)** ✓ (1)

6 Translate $(3\ ;\ -2)$ by 2 left and 3 up. *(translate)* (1)

$(3 - 2\ ;\ -2 + 3) =$ **(1 ; 1)** ✓ (1)

7 Rotate $(2\ ;\ 5)$ by $180°$ about the origin. *(rotate)* (1)



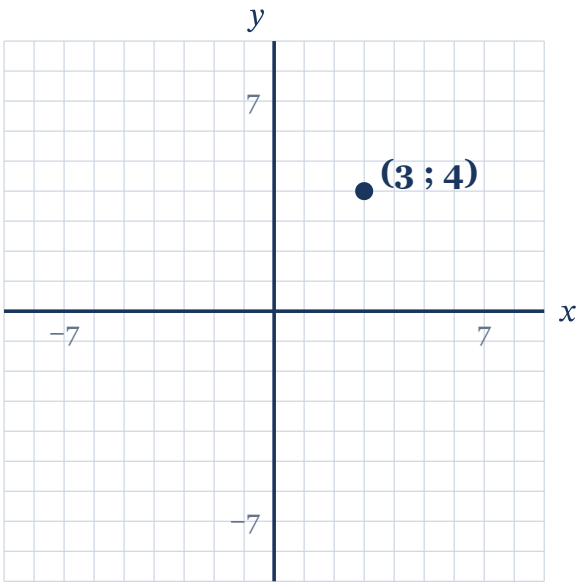
rotate 180° about the origin

(−2 ; −5) ✓ (1)

8 Rotate $(-4\ ;\ 1)$ by $180°$ about the origin. *(rotate)* (1)

(4 ; −1) ✓ (1)

9 Enlarge $(3\ ;\ 4)$ by scale factor 2 from the origin. *(enlarge)* (1)



enlarge by factor 2 from the origin

(6 ; 8) ✓ (1)

10 Enlarge $(4\ ;\ 6)$ by scale factor $\frac{1}{2}$ from the origin. *(reduce)* (2)

(2 ; 3) ✓✓ (2)

11 Write down the number of lines of symmetry of a square, a rectangle and a parallelogram. (3)

Square 4 ✓; rectangle 2 ✓; parallelogram 0 ✓ (3)

12 Explain why a diagonal of a rectangle is NOT a line of symmetry. (2)

Folding along the diagonal does not make the two halves coincide ✓ — the halves are congruent but do not land on top of each other, unless the rectangle is a square ✓ (2)

13 How many lines of symmetry does a regular hexagon have, and how many does an isosceles triangle have? (2)

Regular hexagon 6 ✓; isosceles triangle 1 ✓ (2)

14 A parallelogram has no lines of symmetry but still looks balanced. Explain. (2)

It has rotational symmetry — turning it $180°$ about its centre maps it onto itself ✓ — but there is no line it can be folded along so the halves match ✓ (2)

TOTAL: 20 marks

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