FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

G11: Coordinate geometry

Solve geometric problems on coordinate axes

20 marks · 25 minutes · Non-calculator

1) A is $(1, 2)$ and B is $(7, 10)$. A circle has AB as a diameter. Find its centre and radius.

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[Question 1: 3 marks]

2) Find the area of the triangle with vertices $(0, 0)$, $(6, 0)$ and $(2, 4)$.

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[Question 2: 2 marks]

3) $ABCD$ is a square. A is $(1, 1)$, B is $(4, 2)$ and C is $(3, 5)$. Find D.

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[Question 3: 3 marks]

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4) Show that $(2, 1)$, $(5, 5)$, $(9, 2)$ and $(6, -2)$ form a square, and find its area.

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[Question 4: 4 marks]

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5) Find the point on the y-axis that is the same distance from $(2, 3)$ and $(6, 1)$.

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[Question 5: 4 marks]

6) Find the shortest distance from $(2, 3)$ to the line $y = 2x + 1$. Give your answer as a surd.

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[Question 6: 4 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	$(4, 6)$; 5	Midpoint (P1, A1); $\frac{1}{2}\sqrt{36 + 64}$ (A1).
2	12	$\frac{1}{2} \times 6 \times 4$ (P1); A1.
3	$(0, 4)$	Vector $AB = (3, 1)$, so $D = C - (3, 1)$ (P1, P1); A1.
4	25	All sides 5 (P1); adjacent sides perpendicular (P1); conclusion (C1); 25 (A1).
5	$(0, -6)$	$4 + (y - 3)^2 = 36 + (y - 1)^2$ (P1, P1); $-4y = 24$ (P1); A1.
6	$\sqrt{0.8}$ or $\frac{2}{\sqrt{5}}$	Perpendicular $y = -\frac{1}{2}x + 4$ (P1); meet at $(1.2, 3.4)$ (P1, P1); A1.