

Coordinates & Graphs: Hard Practice Paper 1 Answers

Q#	Answer	Explanation
1	E	From A to M the move is 4 right and 4 up, because -3 to 1 is 4 and -2 to 2 is 4 . B is that same step beyond M, at $1 + 4 = 5$ across and $2 + 4 = 6$ up, so B is $(5, 6)$.
2	C	The line is the slanted side of a right-angled triangle 4 squares across and 3 squares up. Since $4 \times 4 = 16$ and $3 \times 3 = 9$, the square on the slanted side is $16 + 9 = 25$, and $5 \times 5 = 25$, so the line is 5 units long.
3	D	Halfway between 1 and 4 is 2.5, because $1 + 4 = 5$ and half of 5 is 2.5. Halfway between 2 and 7 is 4.5 in the same way, so the midpoint is $(2.5, 4.5)$.
4	B	The centre is the midpoint of the diagonal, so the opposite corner is the same distance the other side of the centre. The corner given is 3 above the centre, so the opposite one is 3 below, at $(4, 1)$.
5	C	Each of the three sides you could treat as a diagonal gives a different fourth corner: $(6, 4)$, $(-2, 4)$ and $(4, -2)$. So there are 3 possible positions.
6	B	The point must be the midpoint of the two. The gap from -1 to 7 is 8 , and half of that is 4 , so counting 4 to the right from -1 gives 3 . The point is $(3, 0)$.
7	A	P is the midpoint of the whole line, at $(6, 6)$, since halfway between 2 and 10 is 6 and halfway between 3 and 9 is 6. Q is halfway between $(2, 3)$ and $(6, 6)$, which is $(4, 4.5)$.
8	A	With sides parallel to the axes, the other two corners use the same pair of x values, -2 and 6 , and the same pair of y values, 1 and 7 , in the other combinations: $(-2, 7)$ and $(6, 1)$.
9	D	Every side is the slanted side of a right-angled triangle 4 squares one way and 3 the other. Since $4 \times 4 = 16$ and $3 \times 3 = 9$, the square on each side is $16 + 9 = 25$, so each side is 5 units because $5 \times 5 = 25$. The perimeter is $4 \times 5 = 20$ units.

10	E	Halfway between -6 and 2 is -2 , because the gap of 8 halved is 4 and $-6 + 4 = -2$. Halfway between 3 and -5 is -1 in the same way, so the midpoint is $(-2, -1)$.
11	B	The two sloping sides are equal when the third vertex sits directly above the middle of the base. The middle of the base is at 3 across, so $(3, 4)$ works.
12	C	The square is 4 squares wide, from 2 to 6 , and 4 squares tall, from 1 to 5 . The missing corner must be level with $(6, 1)$ and below $(2, 5)$, which is $(2, 1)$, not $(2, 2)$.
13	E	A point on the x -axis has $y = 0$, and it can be 5 units away on either side of the origin, so it is at $(5, 0)$ or $(-5, 0)$.
14	D	On this line the y -coordinate is always two thirds of the x -coordinate, because 8 is two thirds of 12 . Two thirds of 9 is 6 , so $(9, 6)$ lies on the line.
15	A	The centre is the midpoint of a diameter. The end given is 3 to the left of the centre, since $4 - 1 = 3$, so the other end is 3 to the right, at $(7, 5)$.