Coordinates & Graphs: Hard Practice Paper 2 Answers

Q#	Answer	Explanation
1	C	The line crosses the y-axis at 2, so the rule ends in + 2. For every 1 square across it climbs 2 squares up, so x is multiplied by 2. The equation is y = 2x + 2.
2	B	From (1, 3) to (4, 12) the line goes 3 squares across and climbs 12 − 3 = 9 squares. So for each square across it climbs 9 ÷ 3 = 3 squares.
3	E	They cross where both rules give the same y. Trying x = 3 gives 3 × 3 − 2 = 7 for the first and 3 + 4 = 7 for the second, so the crossing point is (3, 7).
4	D	The line starts at 5 on the y-axis and drops 1 square for every square to the right, reaching zero at x = 5. A line that falls like this has x taken away, so it is y = 5 − x.
5	A	Parallel lines climb at the same rate, so the rule must start y = 4x. At x = 2 that gives 4 × 2 = 8, but the line has to reach 9, so 1 must be added: y = 4x + 1.
6	E	The line starts at 6 and falls to 0 over 3 squares across, so it drops 6 ÷ 3 = 2 for each square. Falling by 2 each time gives y = 6 − 2x.
7	D	For y = 2x the second number must be double the first, which is true of (2, 4), (3, 6) and (4, 8). Of those only (3, 6) also has 3 + 6 = 9.
8	A	Steepness comes from the number in front of x, not from the number added on. Those numbers are 2, 3, 1, −1 and 0, so y = 3x + 1 climbs the fastest.
9	A	Put x = 20 into the rule: 2 × 20 + 1 = 41, which matches the y-coordinate given, so the point is on the line even though it is far off the drawn grid.
10	D	A line crosses the x-axis where y = 0, so x + 4 must be 0, which needs x = −4. The crossing point is (−4, 0).
11	C	The y values go up by 3 each time, so the rule starts y = 3x. At x = 1 that gives 3, but the table says 1, so 2 must be taken away: y = 3x − 2.

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12	C	A line passes through the origin when x = 0 gives y = 0. Putting x = 0 into y = 5x + 2 gives 2, not 0, so that line crosses the y-axis above the origin.
13	E	Putting h = 0 gives C = 5, so £5 is charged even before the boat is used. The 3 is what each hour adds.
14	C	Both lines climb 1 square for every square across, so they are equally steep. Line A simply sits 2 squares higher everywhere, so the two never meet.
15	B	From (0, 1) to (4, 9) the line climbs 8 over 4 squares, so it rises 8 ÷ 4 = 2 for each square across and the rule is y = 2x + 1. At x = 2 that gives 2 × 2 + 1 = 5, so (2, 5) is on the line.

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