

Foundation GCSE: Other Straight-Line Graphs

Name: _____

Class: _____

Instructions: Answer all questions. Questions are ordered from easiest (1) to hardest (20). Working out should be shown where appropriate.

1. Complete the table of values for $y = 2x + 1$ when $x = 3$.
2. Find the value of y on the line $y = 3x - 4$ when $x = 2$.
3. Find the y -intercept of the graph $y = 4x - 5$.
4. Determine if the point $(2, 7)$ lies on the line $y = 3x + 1$.
5. Complete the table for $y = -x + 6$ when $x = 4$.
6. Find the x -intercept of the straight line $y = 2x - 6$.
7. Find the y -intercept of the line $3x + 2y = 12$.
8. If the point $(k, 11)$ lies on the line $y = 4x + 3$, find the value of k .
9. Complete the table for $y = \frac{1}{2}x + 3$ when $x = 4$.
10. Find the coordinates where the line $y = 5x - 10$ crosses the x -axis.
11. Determine if the point $(-1, 4)$ lies on the line $2x + y = 2$.
12. Find the x -intercept of the line $3x + 4y = 12$.
13. A taxi firm charges a base fee of 3 plus 1.50 per mile (m). Write the linear equation for cost C .
14. Using Q13, calculate the cost of a 12-mile journey.
15. Find the intersection point of the lines $y = 2x$ and $y = x + 4$.
16. A linear graph passes through $(0, 3)$ and $(2, 7)$. Find its equation in the form $y = mx + c$.
17. If the point $(3, m)$ lies on the line $y = -2x + 10$, find m .
18. Find the x -intercept of the line $5x - 3y = 15$.
19. Find the point of intersection of $y = 3x - 1$ and $y = -x + 7$.
20. A line has equation $2x - 3y = 12$. Find its y -intercept.

Answers & Worked Solutions

1. $y = 7 - 2(3) + 1 = 7$.
2. $2 - 3(2) - 4 = 6 - 4 = 2$.
3. $(0, -5)$ – When $x = 0$, $y = -5$.
4. Yes – $3(2) + 1 = 7$, which matches the y -coordinate.
5. $2 - -(4) + 6 = 2$.
6. 3 – Set $y = 0 \implies 0 = 2x - 6 \implies x = 3$.
7. $(0, 6)$ – Set $x = 0 \implies 2y = 12 \implies y = 6$.
8. $2 - 11 = 4k + 3 \implies 8 = 4k \implies k = 2$.
9. $5 - \frac{1}{2}(4) + 3 = 2 + 3 = 5$.
10. $(2, 0)$ – Set $y = 0 \implies 5x = 10 \implies x = 2$.
11. Yes – $2(-1) + 4 = -2 + 4 = 2$.
12. 4 – Set $y = 0 \implies 3x = 12 \implies x = 4$.
13. $C = 1.50m + 3$ – Base fee is 3, variable rate is 1.50 per mile.
14. 21 – $C = 1.50(12) + 3 = 18 + 3 = 21$.
15. $(4, 8)$ – $2x = x + 4 \implies x = 4$, then $y = 2(4) = 8$.
16. $y = 2x + 3$ – Gradient $m = \frac{7-3}{2-0} = 2$, y -intercept $c = 3$.
17. 4 – $m = -2(3) + 10 = -6 + 10 = 4$.
18. 3 – Set $y = 0 \implies 5x = 15 \implies x = 3$.
19. $(2, 5)$ – $3x - 1 = -x + 7 \implies 4x = 8 \implies x = 2$, $y = 3(2) - 1 = 5$.
20. $(0, -4)$ – Set $x = 0 \implies -3y = 12 \implies y = -4$.