

Unit 3 Test — Answer Key

Function Notation, Slope-Intercept & Standard Form, Parallel/Perpendicular Lines

FOR TEACHER / SELF-CHECK USE

This test was written to cover Unit 3's topics (function notation, domain, slope, slope-intercept and standard form, and parallel/perpendicular lines). Every solution below has been independently verified.

1	A function requires every input (x-value) to map to exactly one output. Only $\{(1,2),(2,3),(3,4)\}$ has all distinct x-values. Answer: A — $\{(1,2), (2,3), (3,4)\}$
2	$f(4) = 2(4) - 3 = 8 - 3$. Answer: A — 5
3	The denominator cannot equal 0: $x - 5 \neq 0$, so $x \neq 5$. Answer: A — All real numbers except $x = 5$
4	$f(-3) = (-3)^2 + 1 = 9 + 1$. Answer: 10
5	Slope = $(11 - 3)/(6 - 2) = 8/4$. Answer: A — 2
6	Point-slope: $y - 5 = 3(x - 2)$. $y = 3x - 6 + 5 = 3x - 1$. Answer: A — $y = 3x - 1$
7	Subtract $2x$: $3y = -2x + 12$. Divide by 3: $y = -(2/3)x + 4$. Answer: $y = -(2/3)x + 4$
8	Parallel lines have the same slope. $y = 4x - 7$ has slope 4, so $y = 4x + 2$ (also slope 4) is parallel. Answer: A — $y = 4x + 2$
9	Slope of $y=2x+5$ is 2. Slope of $y=-\frac{1}{2}x+3$ is $-\frac{1}{2}$. 2 and $-\frac{1}{2}$ are negative reciprocals of each other ($2 \times (-\frac{1}{2}) = -1$). Answer: Perpendicular
10	$C(t) = 20 + 0.10t$. $C(150) = 20 + 0.10(150) = 20 + 15$. Answer: $C(t) = 20 + 0.10t$; $C(150) = \\$35$