

Slope and Graphing Linear Functions: math test solutions, Grade 9 – download the PDF

Test solutions with the detailed point scale. Add up your points and spot what to review.

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 Slopes of lines

/ 4 pts

a. $m = \frac{10 - 2}{1 - (-3)} = \frac{8}{4} = 2$ (1 pt)

b. $m = \frac{7 - (-5)}{-2 - 4} = \frac{12}{-6} = -2$ (1 pt)

c. The x -values are equal: the slope is undefined (1 pt)

d. $m = \frac{3 - 3}{2 - (-7)} = 0$ (1 pt)

2 Slope-intercept form

/ 3 pts

a. $m = \frac{2 - (-4)}{3 - 0} = 2$ (1 pt); the y -intercept is -4 , so $y = 2x - 4$ (1 pt).

b. $y = 2 \times 10 - 4 = 16$ (1 pt).

3 Standard form and intercepts

/ 4 pts

- a. If $y = 0$: $3x = 24$, $x = 8$, giving $(8, 0)$ (1 pt). If $x = 0$: $-4y = 24$, $y = -6$, giving $(0, -6)$ (1 pt).
- b. Plot $(8, 0)$ and $(0, -6)$ and draw the line through them (1 pt).
- c. $-4y = -3x + 24$, so $y = \frac{3}{4}x - 6$ and the slope is $\frac{3}{4}$ (1 pt).

4 Point-slope form

/ 3 pts

Point-slope form: $y - 1 = -\frac{3}{2}(x - 4)$ (2 pts).

Expanding: $y = -\frac{3}{2}x + 6 + 1 = -\frac{3}{2}x + 7$ (1 pt). Check: $-6 + 7 = 1$.

5 Parallel and perpendicular

/ 3 pts

- a. Same slope -2 : $y - 4 = -2(x - 1)$, so $y = -2x + 6$ (1 pt).
- b. The perpendicular slope is $\frac{1}{2}$ (1 pt): $y - 3 = \frac{1}{2}(x - 4)$, so $y = \frac{1}{2}x + 1$ (1 pt).

6 Printing pages

/ 3 pts

- a. $k = \frac{45}{3} = 15$ pages per minute (1 pt).
- b. $p = 15t$; for $t = 8$: $p = 120$ pages (1 pt).
- c. $15t = 90$, so $t = 6$ minutes (1 pt).



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