

Algebra 1 · Linear Functions: Slope-Intercept, Point-Slope and Standard Form · Quiz

Common Core F-IF.C.7a, F-LE.A.1a, F-LE.A.2, A-CED.A.2 · mathovore.fr

Name: _____ Date: ____/____/____ Score: ____

Ten multiple-choice questions check your skill with linear functions: finding slope, reading graphs and tables, using the three forms of a line, working with parallel and perpendicular lines, and writing models. Choose the one correct answer, then read the explanation to learn from any mistake.

Algebra 1 Common Core: **F-IF.C.7a · F-LE.A.1a · F-LE.A.2 · A-CED.A.2**

Questions

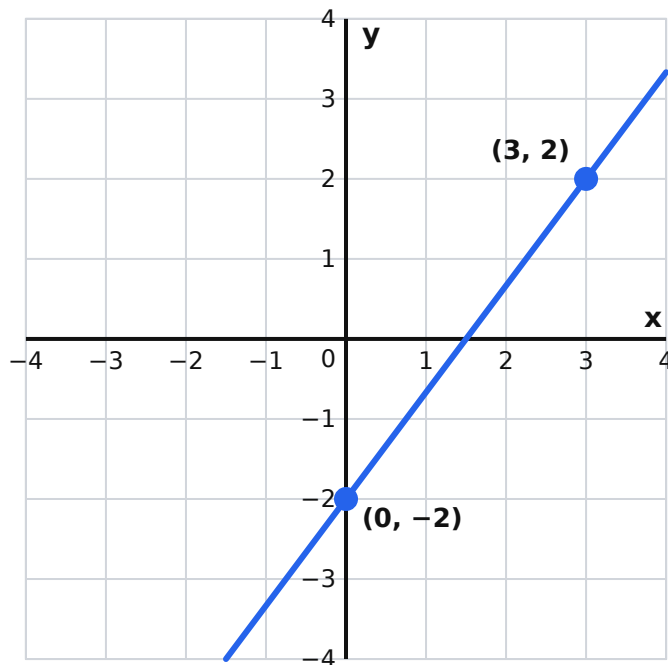
Question 1

What is the slope of the line through (1,2) and (4,11)?

- A. $\frac{1}{3}$
- B. 3
- C. 9
- D. -3

Question 2

Which equation describes the line shown?



A line through two marked points.

- A. $y = \frac{4}{3}x - 2$
- B. $y = \frac{4}{3}x - 2$
- C. $y = \frac{4}{3}x + 2$
- D. $y = -\frac{4}{3}x - 2$

Question 3

What is the slope of the line $2x + 3y = 12$?

- A. $\frac{2}{3}$
- B. $-\frac{2}{3}$
- C. -2
- D. $-\frac{2}{3}$

Question 4

Which equation is in point-slope form for the line with slope -2 through $(3, 5)$?

- A. $y + 5 = -2(x + 3)$
- B. $y - 3 = -2(x - 5)$
- C. $y - 5 = -2(x - 3)$
- D. $y - 5 = 2(x - 3)$

Question 5

What is the x-intercept of $5x - 4y = 20$?

- A. $(0, -5)$

- B. (5,0)
- C. (20,0)
- D. (4,0)

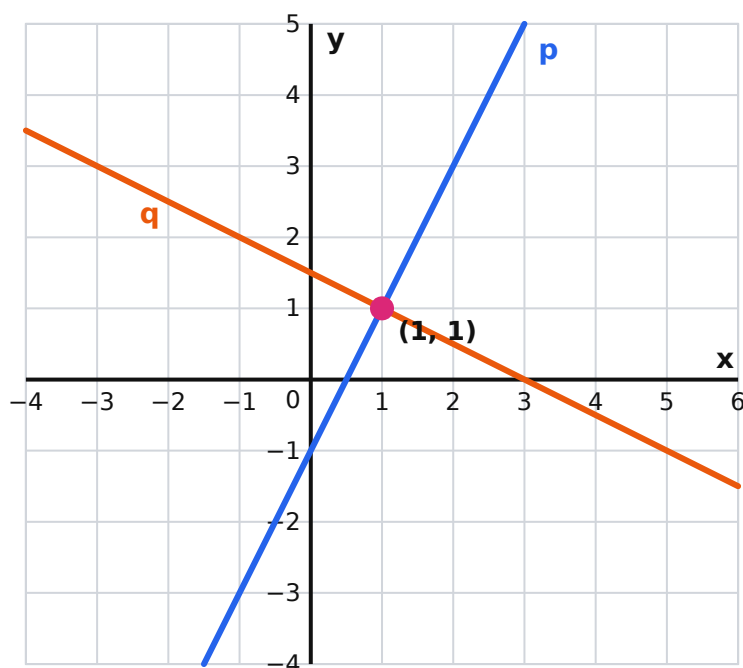
Question 6

Which line through (0,1) is parallel to $y=3x-7$?

- A. $y=-\frac{1}{3}x+1$
- B. $y=3x+1$
- C. $y=3x-7$
- D. $y=\frac{1}{3}x+1$

Question 7

Line p has slope 2 and line q has slope $-\frac{1}{2}$ (see graph). How are the lines related?



Lines p and q cross at (1,1).

- A. Parallel
- B. Neither parallel nor perpendicular
- C. Perpendicular
- D. The same line

Question 8

The table shows a linear function. Which equation matches it?

x	0	2	4	6
y	5	11	17	23

Values of a linear function.

- A. $y = 3x + 5$
- B. $y = 6x + 5$
- C. $y = 3x + 11$
- D. $y = 5x + 3$

Question 9

A taxi charges a .00 base fare plus .50 per mile. What is the cost of a 14-mile ride?

- A. .00
- B. .00
- C. .50
- D. .50

Question 10

Which equation is $y = -\frac{3}{5}x + 2$ written in standard form?

- A. $3x + 5y = 10$
- B. $3x - 5y = 10$
- C. $5x + 3y = 10$
- D. $3x + 5y = 2$

Answer key

1. **B** - Slope is rise over run: $\frac{11-2}{4-1} = \frac{9}{3} = 3$. Dividing the x-change by the y-change gives the reciprocal, a common mistake.
2. **A** - The y-intercept is -2 . The rise from $(0,-2)$ to $(3,2)$ is 4 and the run is 3, so $m = \frac{4}{3}$. Swapping rise and run gives $\frac{3}{4}$.
3. **D** - Solve for y : $3y = -2x + 12$, so $y = -\frac{2}{3}x + 4$. The slope is the coefficient of x after solving, not the number in front of x in standard form.
4. **C** - Point-slope form is $y - y_1 = m(x - x_1)$ with $x_1 = 3$, $y_1 = 5$ and $m = -2$. Swapping the coordinates or changing the sign of a coordinate gives a different line.
5. **D** - Set $y = 0$: $5x = 20$, so $x = 4$. The point $(0,-5)$ is the y-intercept.
6. **B** - Parallel lines have the same slope, 3. Through $(0,1)$ the y-intercept is 1, so $y = 3x + 1$. $y = -\frac{1}{3}x + 1$ is perpendicular.
7. **C** - The product of the slopes is $2 \cdot \left(-\frac{1}{2}\right) = -1$, so the lines are perpendicular. Parallel lines would have equal slopes.
8. **A** - When x goes up by 2, y goes up by 6, so the slope is $\frac{6}{2} = 3$. At $x = 0$ the value is 5. Using 6 as the slope forgets to divide by the change in x .
9. **B** - The model is $C = 2.5m + 3$. For $m = 14$: $2.5(14) + 3 = 35 + 3 = 38$. Charging the base fare per mile or adding it to the miles first gives the wrong totals.
10. **A** - Multiply by 5: $5y = -3x + 10$. Add $3x$: $3x + 5y = 10$. Forgetting to multiply the constant 2 by 5 gives $3x + 5y = 2$.

Remember:

- Standards F-IF.C.7a, F-LE.A.1a, F-LE.A.2 and A-CED.A.2: graph linear functions, recognize constant rates of change, and write linear models.
- Slope from two points: $m = \frac{y_2 - y_1}{x_2 - x_1}$.
- Slope-intercept $y = mx + b$, point-slope $y - y_1 = m(x - x_1)$, standard $Ax + By = C$.
- Parallel lines have equal slopes; perpendicular lines have slopes whose product is -1 .
- In a model, the slope is the rate of change and the y-intercept is the starting value.