LESSON MAKER PRO

Slope Line Quest

Use a rate of change to graph proportional lines.

GRADE 7 · 7.PFA.1.c

7.PFA.1.c "Graph a line representing a proportional relationship, between two quantities given an ordered pair on the line and the slope, m, as rate of change. Slope may include positive or negative values."

NAME _____ DATE _____

GRAPH FROM THE SLOPE

A proportional relationship has the form y = mx, so its graph always passes through (0,0). Use the slope to check the given point, then plot the origin and the given point and draw a straight line through them.

WORKED EXAMPLE

Graph the proportional line that contains (7,5) and has slope m = 5/7.

1. Write the proportional equation: y = mx.
2. Substitute the slope: y = 5/7x.
3. Plot (0,0) and (7,5).
4. Draw a straight line through both points.

Answer: y = 5/7x; graph the line through (0,0) and (7,5).

PRACTICE 6 problems

1 Graph the proportional line that contains (3,9) and has slope m = 3.

ANSWER _____

2 Graph the proportional line that contains (-4,2) and has slope m = -1/2.

ANSWER _____

3 Graph the proportional line that contains (8,-6) and has slope m = -3/4.

ANSWER _____

4 Graph the proportional line that contains (-5,-10) and has slope m = 2.

ANSWER _____

5 Graph the proportional line that contains (12,3) and has slope m = 1/4.

ANSWER _____

6 Graph the proportional line that contains (-9,-12) and has slope m = 4/3.

ANSWER _____

APPLY IT Show your work

1 In a mobile game, x is the number of obstacle hits and y is the change in score. Each obstacle hit changes the score by -6 points. After 4 hits, the score change is -24 points. Graph the proportional relationship.

WORK SPACE

ANSWER _____

2 For a school spirit contest, x is the number of bracelets sold and y is the money earned in dollars. The team earns $8 for each bracelet. After selling 6 bracelets, the team has earned $48. Graph the proportional relationship.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student says that the proportional line containing (15,-10) with slope m = -2/3 also contains (9,-8). Is the student correct? Explain, write the equation, and name two points to plot.

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_____

ANSWER KEY

Slope Line Quest

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Graph the proportional line that contains (3,9) and has slope m = 3.	**y = 3x; graph the line through (0,0) and (3,9).**
2	Graph the proportional line that contains (-4,2) and has slope m = -1/2.	**y = -1/2x; graph the line through (0,0) and (-4,2).**
3	Graph the proportional line that contains (8,-6) and has slope m = -3/4.	**y = -3/4x; graph the line through (0,0) and (8,-6).**
4	Graph the proportional line that contains (-5,-10) and has slope m = 2.	**y = 2x; graph the line through (0,0) and (-5,-10).**
5	Graph the proportional line that contains (12,3) and has slope m = 1/4.	**y = 1/4x; graph the line through (0,0) and (12,3).**
6	Graph the proportional line that contains (-9,-12) and has slope m = 4/3.	**y = 4/3x; graph the line through (0,0) and (-9,-12).**

PART 2 · APPLY IT

1. **y = -6x; graph the line through (0,0) and (4,-24).** The rate of change is -6 points per hit, so m = -6. A proportional relationship starts at the origin, and -6(4) = -24.
2. **y = 8x; graph the line through (0,0) and (6,48).** The rate is $8 per bracelet, so m = 8. Since 8(6) = 48, the given point is on y = 8x.

CHALLENGE

No. When x = 9, y = (-2/3)(9) = -6, not -8. The equation is y = -2/3x. Plot (0,0) and (15,-10).

Accept equivalent equations such as y = 3x or 3x = y. For each graph, accept any accurate straight line through the origin and the given point.