Algebra 1 3.6 $y = mx$ $y = kx$

Write an equation for a proportional relationship

Write an equation for a nonproportional relationship

linear

slope

constant of variation

y-intercept

directly proportional

proportional

nonproportional

whiteboards(?)

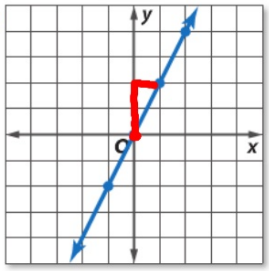
Line

(0,0)

KeyConcept Proportional Relationship

Words A relationship is proportional if its equation is of the form $y = kx$, $k \neq 0$. The graph passes through (0, 0).

5

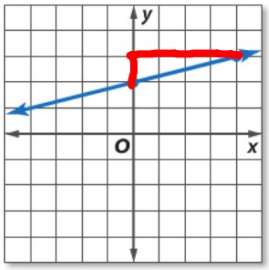


yes $y = \frac{2}{1}x$

$y = 2x$

$f(x) = 2x$

8.



no $y = \frac{1}{4}x + 2$

$f(x) = \frac{1}{4}x + 2$

$a_n = a_1 + (n-1)d$

For each arithmetic sequence, determine the related function. Then determine if the function is *proportional* or *nonproportional*. Explain.

9. 0, 3, 6, …

$a_n = 0 + (n-1)(3)$

$= 0 + 3n + -3$

$a_n = 3n + -3$

n_0

10. −4, 0, 4, …

$a_n = -4 + (n-1)(4)$

$= -4 + 4n + -4$

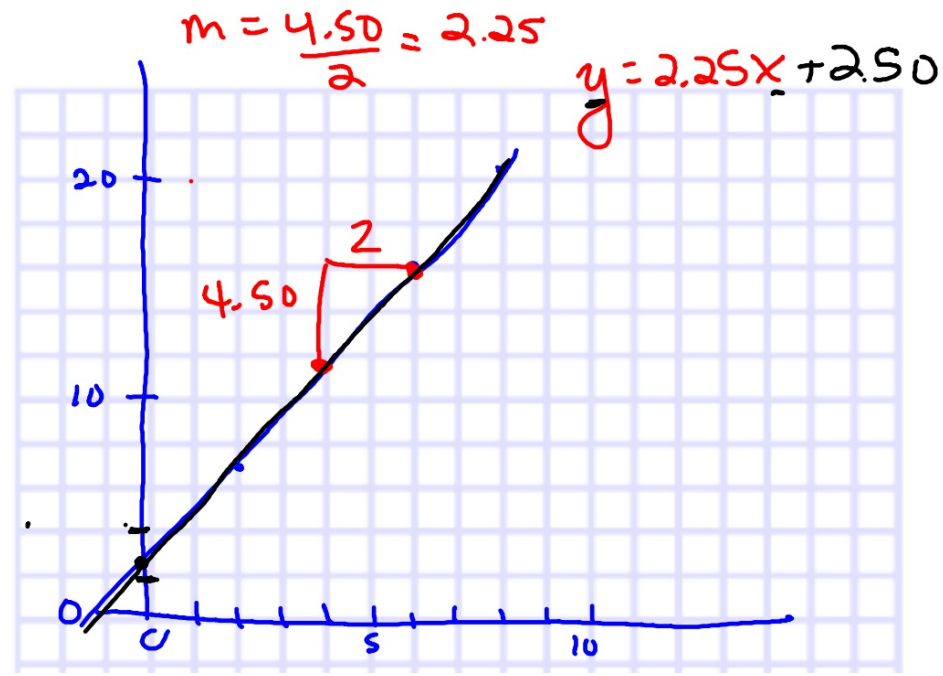
$= 4n + -8$

n_0

11. BOWLING Marielle is bowling with her friends. The table shows prices for renting a pair of shoes and bowling. Write an equation to represent the total price y if Marielle buys x games.

Games Bowled	Total Price ($)
2	7.00
4	11.50
6	16.00
8	20.50

(bowling + shoes)



12. SNOWFALL The total snowfall each hour of a winter snowstorm is shown in the table below.

Hour	1	2	3	4
Inches of Snowfall	1.65	3.30	4.95	6.60

1.65

a. Write an equation to fit the data in the table.

b. Describe the relationship between the hour and inches of snowfall.

$a_n = a_1 + (n-1)(d)$

$= 1.65 + (n-1)(1.65)$

13 **FUNDRAISER** The Cougar Pep Squad wants to sell T-shirts in the bookstore for the spring dance. The cost in dollars to order T-shirts in their school colors is represented by the equation $C = 2t + 3$.

a. Make a table of values that represents this relationship.

b. Rewrite the equation in function notation.

c. Graph the function.

$f(x) = 2x+3$

0	$2 \cdot 0 + 3$	3
1	$2 \cdot 1 + 3$	5
2	$2 \cdot 2 + 3$	7
3	$2 \cdot 3 + 3$	9

GuidedPractice

1. **CHARITY** A professional soccer team is donating money to a local charity for each goal they score.

Number of Goals	1	2	3	4	5
Donation ($)	75	150	225	300	375

A. Graph the data. What can you deduce from the pattern about the relationship between the number of goals and the money donated?

B.

C. goals.