

Tyler and Eric have jobs at the new Cabela's that opened up by the Galleria Mall. Tyler is Eric's manager. In their first year, Tyler will be paid \$12 per hour and Eric will be paid \$6 per hour. They have been told that after every year with the company, they will each be given a raise of \$4 per hour. Is the relationship between Tyler's pay and Eric's pay rate proportional? Explain your reasoning using a table.

Eric (x)	Tyler (y)	
6	12	$\frac{y}{x} = \frac{12}{6} = 2$
10	16	$\frac{16}{10} = 1.6$
14	20	$\frac{20}{14} = 1.4$
18	24	$\frac{24}{18} = 1.3$

No, Tyler's pay is not proportional to Eric's pay b/c the ratios are not equivalent and there is no constant value.

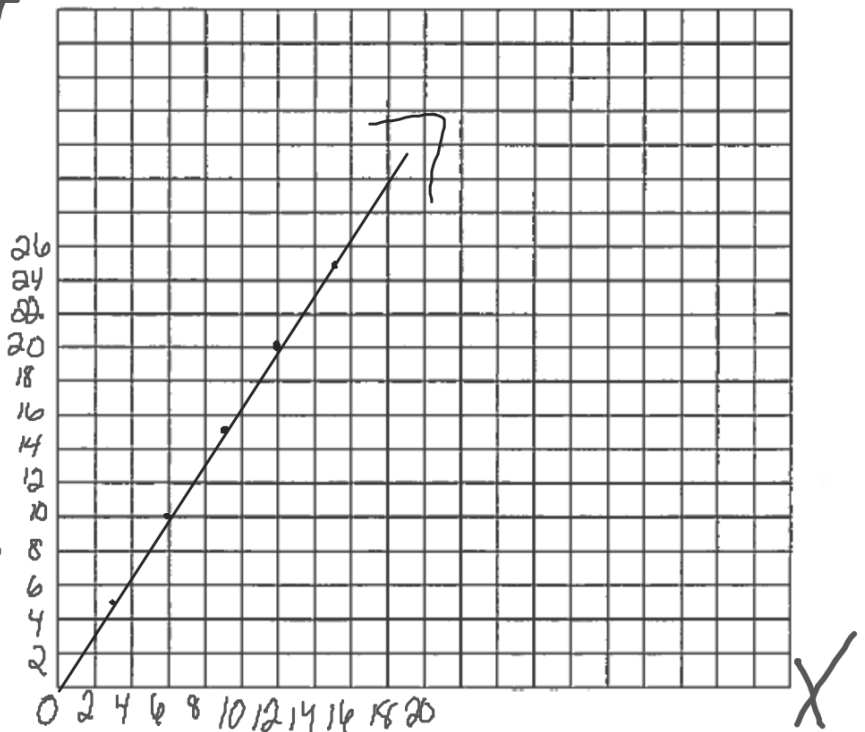
2. A recent study claimed that in any given month, for every 3 phone calls a boy made or received, a girl made or received 5 phone calls. Is the relationship between the number of phone calls made or received by boys proportional to the number of phone calls made or received by girls? Explain your reasoning using a graph on the coordinate plane.

Boys (x)	girls (y)
3	5
6	10
9	15
12	20
15	25

y

Phone calls

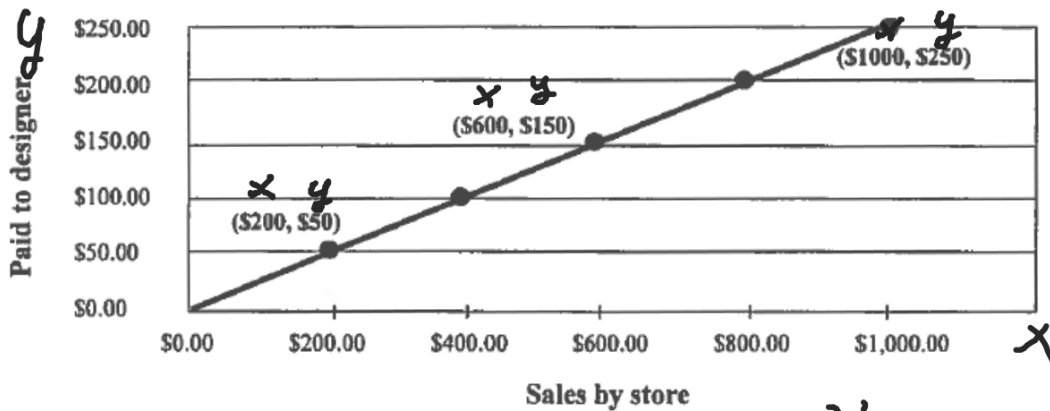
girls



Yes, this relationship is proportional b/c the points lie on a straight line and the line passes through the origin (0,0).

Boys

3. When a pair of designer jeans are sold by a store, the store takes some of the money and the designer gets the rest. The graph below shows how much money a designer makes given the total amount of money brought in by one popular store from sales of the jeans.



- a. Identify the constant of proportionality between dollars earned by the designer and dollars brought in by sales of the jeans.

$$\frac{y}{x} \quad \frac{50}{200} = .25 \quad \frac{150}{600} = .25 \quad \frac{250}{1000} = .25 \quad \boxed{\text{C.O.P. } \$.25 \text{ or } \frac{1}{4}}$$

- b. Write an equation relating dollars earned by the designer, y , to dollars brought in by sales of the jeans, x .

$$y = .25x \text{ or } y = \frac{1}{4}x$$

c. According to the proportional relationship, how much money did the jeans bring in from sales in the first week, if the designer earned \$800 that week?

$$y = .25x$$
$$800 = .25x$$
$$\frac{800}{.25} = \frac{.25x}{.25}$$
$$\$3,200 = x$$

\$3,200

d. Describe what the point (0, 0) on the graph represents in terms of the situation being described by the graph.

If the store makes no sales, the designer gets no money.

e. Which point on the graph represents the amount of money the designer gets for \$1 in money brought in from sales of the jeans by the store?

Unit Rate (x, y)
 $(1, .25)$ or $(1, \frac{1}{4})$

