

Creating Linear Equations Practice

Sometimes there is no slope given or there *appears* to be 2 slopes! These two numbers are the number per x and the number per y . Each of these is multiplied to x and y , respectively. There is no beginning amount, nor are there points given. However, there may be a TOTAL involved. In this case, the equation can be written in $Ax + By = C$ form with C being the total amount. *Neither variable is dependent on the other in this case!*

1. A 100-point test has x questions worth 2 points apiece and y questions worth 4 points apiece. What do the variables stand for?

$x =$ 2-point questions, $y =$ 4-point questions What is the total? 100

a. Write an equation that describes all possible numbers of questions that may be on the test.

$$2x + 4y = 100$$

b. If you have 24 questions worth 4 points apiece, how many questions will be worth 2 points apiece?

$$4(24) = 96 \quad 96 + y = 100$$

two-point questions

2. Louise has \$36 in five-dollar bills and singles. How many of each type of bill does she have? What do the variables stand for?

$x =$ \$5 bills, $y =$ Singles What's the total? \$36

a. Write an equation.

$$5x + 1y = 36$$

b. If Louise has 2 five-dollar bills, how many singles does she have?

$$2(5) = 10 \quad \begin{array}{r} 36 \\ -10 \\ \hline 26 \end{array}$$

26 singles

3. The Ramy family bought 4 sandwiches and 3 salads. They spent \$24. Let x be the cost of a sandwich and y be the cost of a salad.

What do the variables stand for?

$x =$ Cost per sandwich, $y =$ cost per salad What is the total? \$24

a. Write an equation.

$$4x + 3y = 24$$

b. If each sandwich costs \$3.75, how much did each salad cost?

$$4(3.75) = 15$$

$$15 + 9 = 24$$

$9 \div 3 = 3$ \$3 per salad

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4. You are in charge of buying food for your family reunion. You spend \$90 on hamburgers and turkey burgers. You pay \$1.50 for each hamburger and \$2 for each turkey burger. Let x be the number of hamburgers and y be the number of turkey burgers.
- a. Write an equation in standard form that represents the situation.

$$1.5x + 2y = 90$$

- b. If you bought 30 turkey burgers, how many hamburgers did you buy?

$$2 \cdot 30 = 60$$

$$90 - 60 = 30 \div 1.50 = 20 \text{ hamburgers}$$

5. You are selling drinks at the carnival to raise money for your club. You sell lemonade for \$2 per cup and orange drinks for \$3 per cup. Your sales totaled \$240. Let x be the number of cups of lemonade and y be the number of orange drinks.
- a. Write an equation in standard form that represents the situation.

$$2x + 3y = 240$$

- b. If you sold 60 cups of lemonade, how many cups of orange drink did you sell?

$$2 \cdot 60 = 120$$

$$240 - 120 = 120 \div 3 = 40 \text{ cups of orange-colored liquid}$$

6. A weightlifter uses 45-pound plates and 10-pound plates to lift 260 pounds. Let x represent the number of 45 pound weights and y represent the number of 10 pound weights.
- a. Write an equation in standard form the represents the situation.

$$45x + 10y = 260$$

- b. If the weightlifter uses eight 10-pound weights, how many 45 pound weights did he use?

$$10 \cdot 8 = 80$$

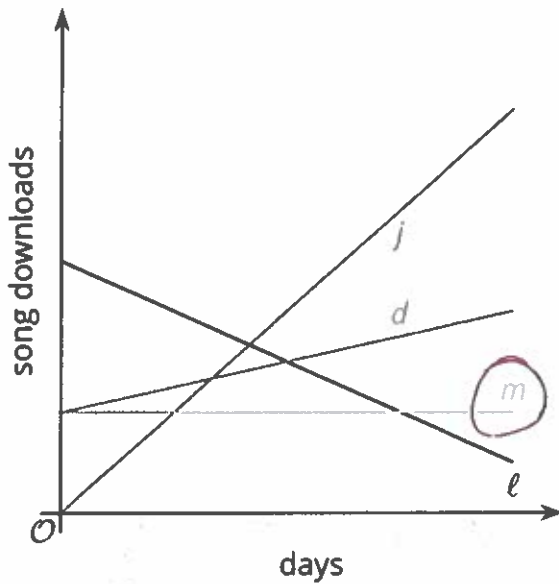
$$260 - 80 = 180 \div 45 = 4$$

Linear Equations Practice

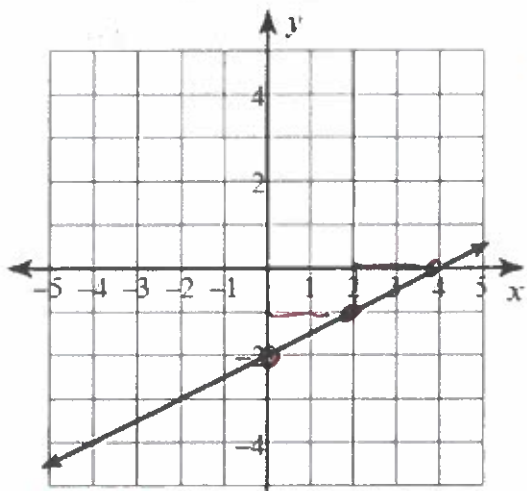
1. Select all equations which (10, 0) makes true:

- a. $5x + 2y = 15$ $5(10) + 2(0) = 50 + 0$
- b. $2x + 4y = 20$ $2(10) + 4(0) = 20 + 0$
- c. $x + 6y = 10$ $10 + 6(0) = 10 + 0$
- d. $3x + 3y = 13$ $3(10) + 3(0) = 30 + 0$

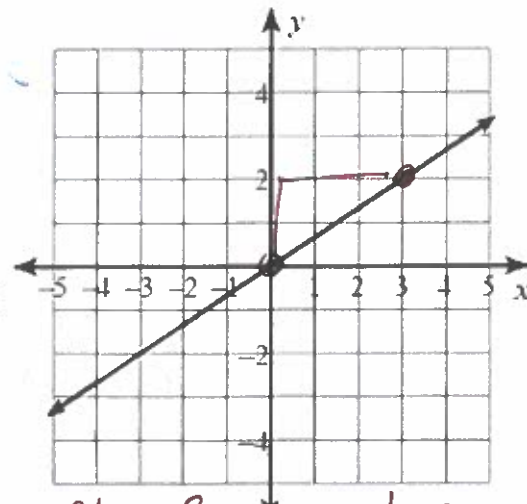
2. A successful music app tracked the number of song downloads each day for a month for 4 music artists, represented by lines ℓ , j , m , and d over the course of a month. Which line represents an artist whose downloads remained constant over the month?



3. Write an equation for each line



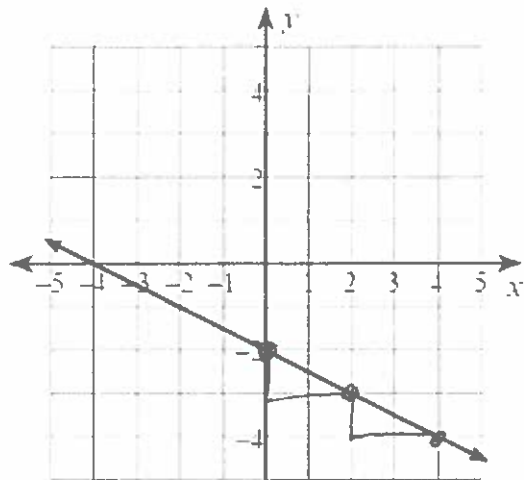
Slope: $\frac{1}{2}$ y-int: -2
 $y = \frac{1}{2}x - 2$



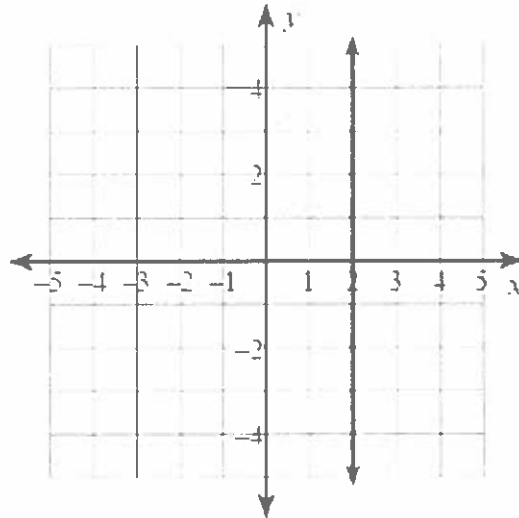
Slope: $\frac{2}{3}$ y-int: 0
 $y = \frac{2}{3}x$

Linear Equations Practice

Write an equation for each line



Slope: $-\frac{1}{2}$ y -int: -2
 $y = -\frac{1}{2}x - 2$



$x = 2$

4. A sandwich store charges a \$10 delivery fee, and \$4.50 for each sandwich.

a. Write an equation to represent this situation.

$y = 4.50x + 10$

b. What would the cost be to have 6 sandwiches delivered?

$4.5(6) = 27 + 10 = \$37$

c. How many sandwiches were ordered if the total cost was \$32.50?

5 sandwiches

$\frac{-10}{\$32.50 - 10} \div 4.50 = 5$

5. A truck is shipping jugs of drinking water and cases of paper towels. A jug of drinking water weighs 40 pounds and a case of paper towels weighs 16 pounds. The truck can carry 2,000 pounds of cargo altogether.

a. Write an equation to represent this situation.

$40x + 16y = 2000$

b. The truck is carrying a full load using all 2,000 pounds of its capacity. If the truck is carrying 24 cases of water, how many cases of paper towels is it carrying

$24 \cdot 40 = 960$
 $2000 - 960 = 1040 \div 16 = 65$ cases of paper towels