

Label each phrase with either dependent variable or independent variable.

1. *D* the number of pints of ice cream sold at Dairy Mart

*I* the temperature outside

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2. *I* the number of games played at Chucky Cheese

*D* the number of tickets earned for prizes at Chucky Cheese

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3. *I* the number of pear trees that have been planted in the orchard

*D* the number of barrels of pears the orchard will produce

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4. *I* the number of dogs at an animal shelter

*D* the number of pounds of dog food purchased each month

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5. *D* Brook's grade on a test

*I* the number of hours Brook spent studying for the test

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6. *D* the amount left for a tip

*I* the bill for dinner at a restaurant

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7. *I* the age of a car

*D* the value of a car

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8. *D* the loudness of fans inside a football stadium

*I* the number of people in attendance at the football game

For #9 & 10, solve the equations.

9.  $2(x-3)=3(2x+4)$

$$2x - 6 = 6x + 12$$

$$-18 = 4x$$

$$\frac{-18}{4} = x$$

$$\boxed{-4.5 = x}$$

10.  $6-(2x+6)=4x-12$

$$6 - 2x - 6 = 4x - 12$$

$$-2x = 4x - 12$$

$$-6x = -12$$

$$\boxed{x = 2}$$

11. For the equation  $\frac{m}{x} = y$ , solve for  $x$ .

$$m = xy$$
$$\boxed{\frac{m}{y} = x}$$

12. For the equation  $kv - m = p$ , solve for  $v$ .

$$kv = p + m$$
$$\boxed{v = \frac{p+m}{k}}$$

13. For the equation  $\frac{n}{m} = \frac{k}{t}$ , solve for  $n$ .

$$nt = mk$$
$$\boxed{n = \frac{mk}{t}}$$

Solve each equation or formula for the variable specified.

14.  $3x - 4y = 7$ , for  $y$ .

$$7 - 3x = -4y$$

$$\frac{7 - 3x}{-4} = y$$

15.  $d = rt$ , for  $t$ .

16.  $\frac{y}{x} = r$ , for  $x$ .

$$y = rx$$
$$\boxed{\frac{y}{r} = x}$$

17.  $\frac{1}{2}y + a = b$ , for  $y$ .

$$y + 2a = 2b$$
$$\boxed{y = 2b - 2a}$$

18.  $y = mx + b$ , for  $x$ .

$$y - b = mx$$

$$\frac{y - b}{m} = x$$

19.  $\frac{by + 2}{5} = c$ , for  $y$ .

$$by + 2 = 5c$$

$$by = 5c - 2$$

$$y = \frac{5c - 2}{b}$$

20.  $P = \frac{E^2}{R}$ , for  $R$ .

$$\frac{PR}{P} = \frac{E^2}{P}$$

$$R = \frac{E^2}{P}$$

21.  $kmx = 6y$ , for  $m$ .

$$m = \frac{6y}{kx}$$

22.  $p(t + 3) = -4$ , for  $t$ .

$$pt + 3p = -4$$

$$pt = -4 - 3p$$

$$t = \frac{-4 - 3p}{p}$$

23.  $\frac{2ax - n}{3} = -6$ , for  $x$ .

$$2ax - n = -18$$

$$\frac{2ax}{2a} = \frac{n - 18}{2a}$$

$$x = \frac{n - 18}{2a}$$

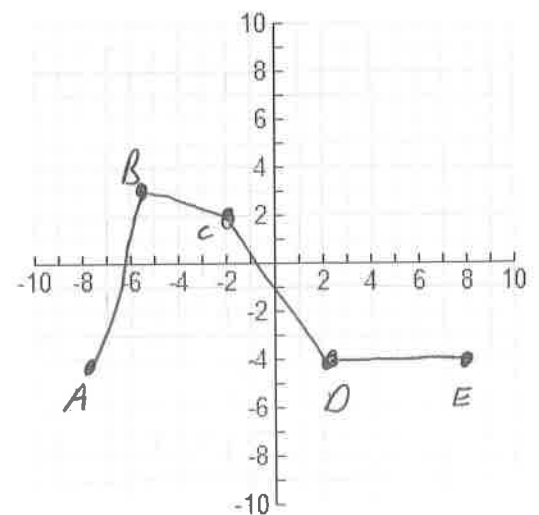
24. Sketch a graph that matches the characteristics of the average rate of change given:

Between points A and B: large, positive rate

Between points B and C: small, negative rate

Between points C and D: large, negative rate

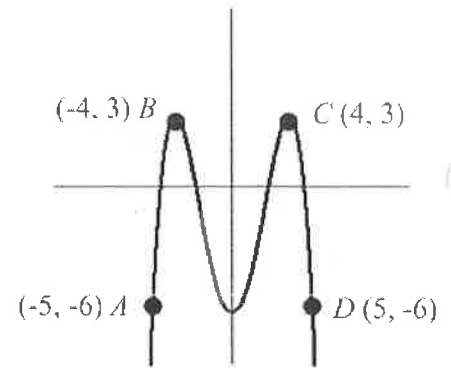
Between points D and E: No change



25. Use the graph below to answer the following questions.

a. Calculate the average rate of change from point  $A$  to point  $B$ .

$$\frac{3+6}{-4+5} = \frac{9}{1} = 9$$



b. Calculate the average rate of change from point  $B$  to point  $C$ .

$$\frac{3-3}{4+4} = \frac{0}{8} = 0$$

c. Calculate the average rate of change from point  $C$  to point  $D$ .

$$\frac{-6-3}{5-4} = \frac{-9}{1} = -9$$

d. Describe the relationship that exists between the average rate of change and the pattern of the graph between points  $A$  and  $B$ .

large positive increase

e. Describe the relationship that exists between the average rate of change and the pattern of the graph between points  $B$  and  $C$ .

no vertical change

f. Describe the relationship that exists between the average rate of change and the pattern of the graph between points  $C$  and  $D$ .

large negative change