

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

- 1 TrailGear decides to market a line of backpacks. The cost,  $C$ , of manufacturing backpacks is a function of the number,  $x$ , of backpacks produced, given by the equation

$$C(x) = 4000 + 15x$$

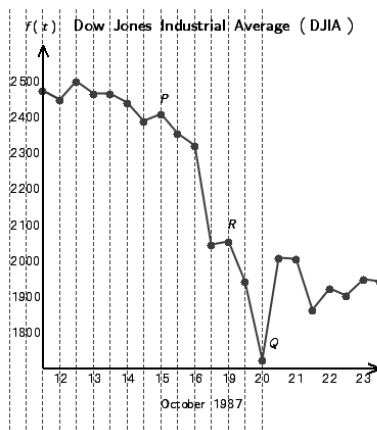
where  $C(x)$  is measured in dollars. Find the cost of producing 500 backpacks.

- 2 Does the table define the second variable as a function of the first variable?

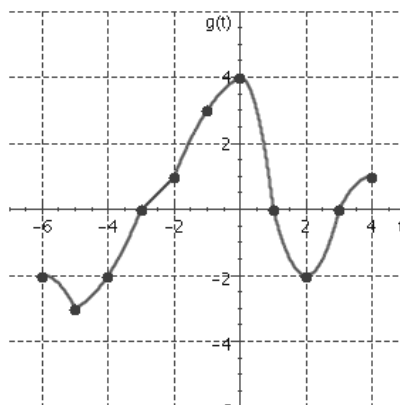
If it is a function, find the equation, if no write *no*.

$p$	- 5	- 4	- 3	- 2	- 1
$d$	- 5	- 4	- 3	- 2	- 1

- 3 The coordinates of point Q in the figure are (20, 1726). What do the coordinates tell you about the function  $f$ ? What was the DJIA at noon on October 20?



- 4 Consider the graph of the function  $g$  shown in the figure. Find  $g(-3)$ ,  $g(0)$ , and  $g(4)$ .

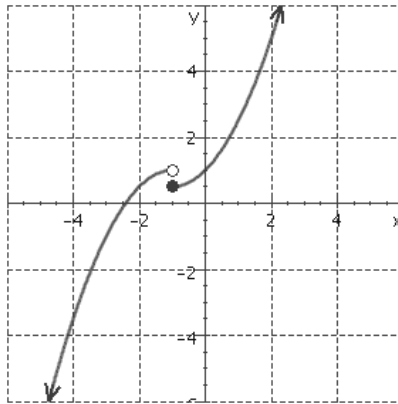


Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

5 Use the vertical line test to determine whether the graph in the figure represents a function.



6 Simplify the expression.

$$\frac{8 - 7\sqrt[3]{64}}{2}$$

7 Simplify the expression.

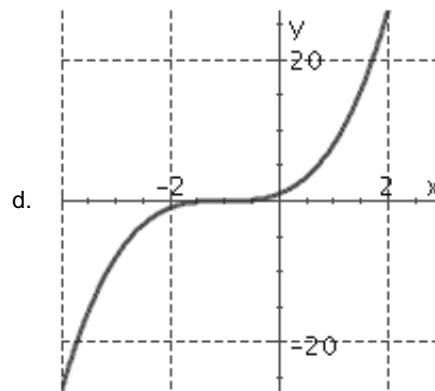
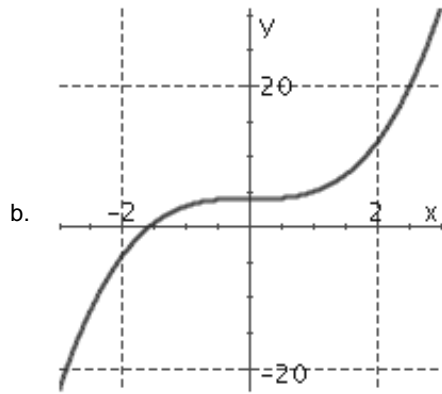
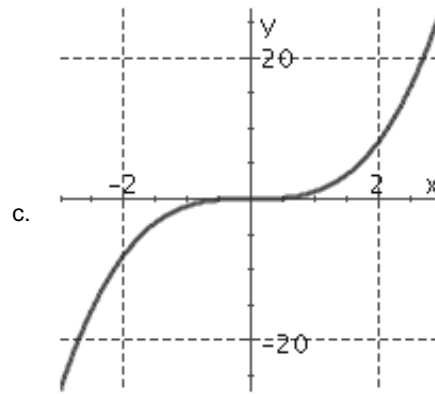
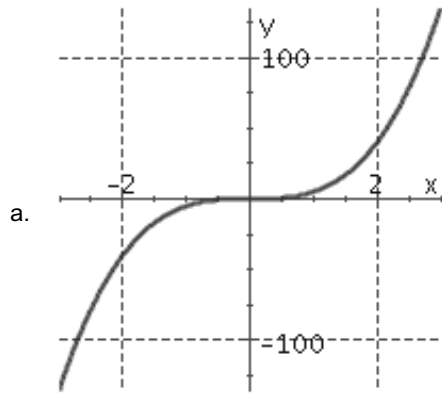
$$6 - 8|2 - 6|$$

8 Simplify the expression.

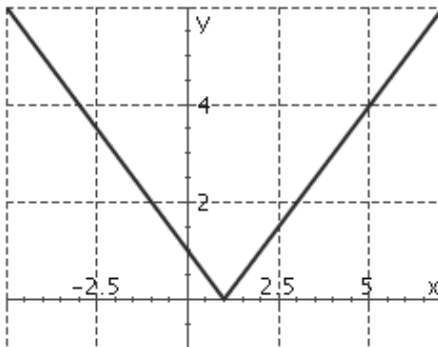
$$5 - \sqrt[3]{-64}$$

9 Sketch the function by hand, paying attention to the shape of the graph. Find the correct graph of the function.

$$f(x) = x^3$$



10 The graph of a function is shown. Find the equation of the function.



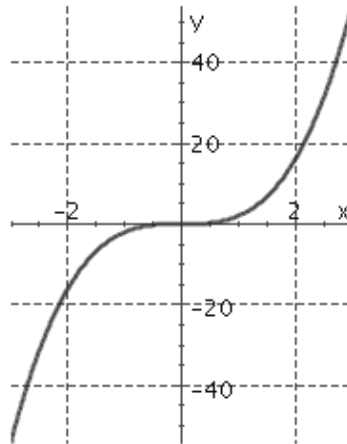
a.  $f(x) = |x|$

b.  $f(x) = |x - 1|$

c.  $f(x) = |x - 5|$

d.  $f(x) = |x + 1|$

11 Find the equation of the graph.



a.  $f(x) = 2\sqrt{x}$

b.  $f(x) = 2x^3$

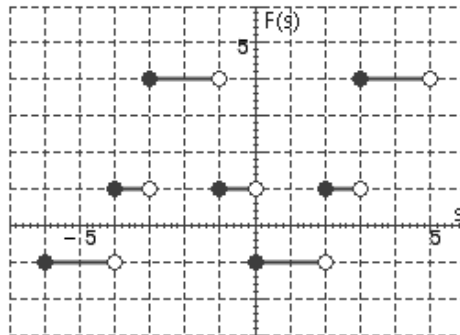
c.  $f(x) = 2x^2$

d.  $f(x) = 2\sqrt[3]{x}$

e.  $f(x) = \frac{2}{x}$

12 Determine the domain and range of the function  $F$  graphed in the figure below.

Enter your answer in interval and set notations.



13 Find the domain and range of the function.

$$H(x) = \frac{1}{x^4}$$

Enter your answers in interval notation.

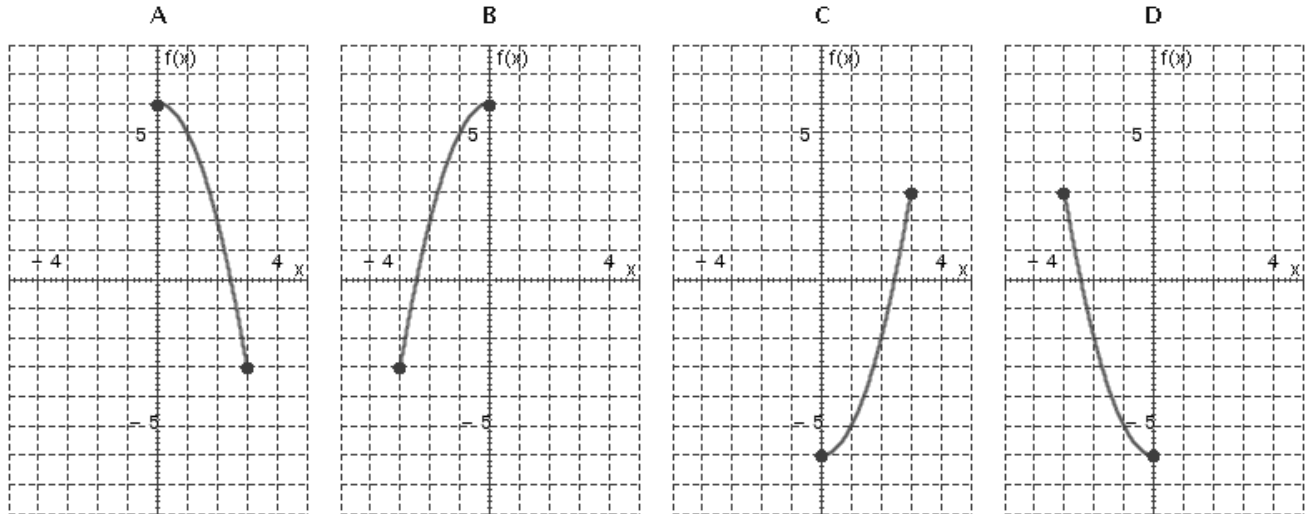
14 Choose the correct graph of the function

$$f(x) = x^2 - 6$$

on the domain

$$0 \leq x \leq 3$$

and give its range.



15 For the function described below, use the values in the table to find the constant of variation,  $k$ , and fill in the rest of the table with the correct values.

$y$  varies directly with  $x$

$x$	$y$
4	
5	4
	7.2
13	
	11.2

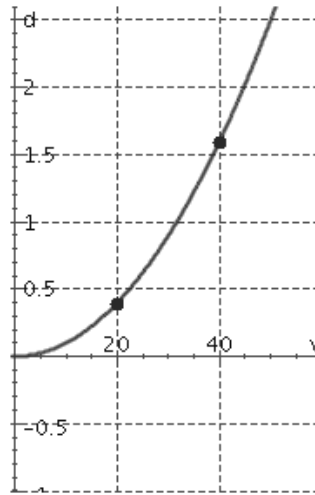
16 Tuition at Woodrow University is \$300 plus \$30 per unit. Is the tuition proportional to the number of units you take?

17 The amount of current,  $I$ , that flows through a circuit varies inversely with the resistance,  $R$ , on the circuit. An iron with a resistance of 9 ohms draws 5.75 amps of current. What is the resistance of a toaster that draws 11.5 amps of current?

- a. 5.1 ohms      b. 4.8 ohms      c. 4.5 ohms      d. 5.5 ohms

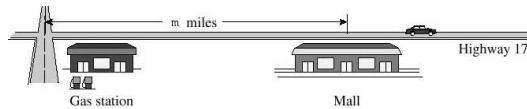
- 18 In this problem, the function on the graph is an example of either inverse or direct variation.

The faster a car moves, the more difficult it is to stop. The graph shows the distance,  $d$ , required to stop a car as a function of its velocity,  $v$ , before the brakes were applied. What distance is needed to stop a car moving at 110 kilometers per hour?



- a. 10      b. 12.1      c. 16.9

- 19 Marlene is driving to a new outlet mall on Highway 17. There is a gas station at Marlene's on-ramp. She buys gas there and resets her odometer to 0 before getting on the highway. The mall is only  $m = 15$  miles from Marlene's on-ramp, but she mistakenly drives past the mall and continues down the highway. Marlene's distance from the mall is a function of how far she has driven on Highway 17 (see the figure). Determine how far Marlene has driven when she is at least 10 miles from the mall.



- 20 In the following problem, one quantity varies directly with the square root of the other, that is,  $y = k\sqrt{x}$ .

The table gives the distance,  $d$ , in miles that you can see from various heights,  $h$ , given in feet. How far can you see from an airplane flying at 22500 feet?

$h$	100	441	961	1681
$d$	11.83	24.843	36.673	48.503

- a.  $d = 186.85$  miles      b.  $d = 171.15$  miles      c.  $d = 177.45$  miles      d.  $d = 168.85$  miles

## ANSWER KEY

### Ch 5 rev

---

- |   |          |         |          |                                    |                                   |                 |
|---|----------|---------|----------|------------------------------------|-----------------------------------|-----------------|
| 1. $C(500)=11500$                                   | 2. $d=p$ | 3. 1726 | 4. 0,4,1 | 5. yes                             | 6. - 10                           | 7. - 26         |
| 8. 9  | 9. c     | 10. b   | 11. b    | 12. $[-6,5), \text{set}\{-1,1,4\}$ | 13. $(-\infty,0) \cup (0,\infty)$ | 14. $C, [-6,3]$ |
| 15. $k=0.8, (4,3.2), (9,7.2), (13,10.4), (14,11.2)$ | 16. no   | 17. c   | 18. b    | 19. $x \leq 5, x \geq 25$          | 20. c                             |                 |