

6-7 Proportions and Equations - Practice and Problem Solving

Write an equation to represent the function displayed in each table.

7.

Input, x	1	2	3	4	5
Output, y	6	12	18	24	30

Each output y is equal to 6 times the input x .

$$y = 6x$$

9.

Input, x	0	1	2	3	4
Output, y	0	15	30	45	60

Each output y is equal to 15 times the input x .

$$y = 15x$$

VIDEO GAMES Use the following information.

In a video game, each player earns 15 points for each coin they collect.

11. Make a table to show the relationship between the number of coins collected c and the total points p .

Coins Collected, c	Multiply by 15	Points Earned, p
1	1×15	15
2	2×15	30
3	3×15	45
4	4×15	60

13. How many points will a player earn if she collects 21 coins?

$$p = 15c$$

Substitute 21 for c .

$$p = 15(21) \text{ or } 315$$

The player will earn 315 points if she collects 21 coins.

ELEPHANTS Use the following information.

An African elephant eats at a rate of 400 pounds of vegetation each day.

15. Write an equation to find v , the number of pounds of vegetation an African elephant eats in d days.

The pounds of vegetation v is 400 times the number of days, d .

$$v = 400d$$

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17. **ENTERTAINMENT** The disc jockey hired for the spring dance charges the amount shown in the table. Write a sentence and an equation to describe the data. At this rate, how much will it cost to hire the disc jockey for 5 hours?

1	35
2	70
3	105

The disc jockey charges \$35 per hour.

$$t = 35h$$

Substitute 5 for h .

$$t = 35(5) \text{ or } 175$$

It will cost \$175 to hire the disc jockey for 5 hours.

19. **RESEARCH** Use the Internet or another source to find the average amount of food that another animal eats per day. Then write an equation to find f , the amount of food the animal eats in d days.

Sample answer: A harbor seal eats an average of 14 lb of food per day.

$$f = 14d$$

Write an equation to represent the function displayed in each table.

21.

Input, x	3	6	9	12	15
Output, y	1	2	3	4	5

Each output y is equal to the input x divided by 3.

$$y = x \div 3$$

23. **WEATHER** Write an equation to find the total precipitation t in inches for Burbank in m months. How much precipitation does Burbank receive in 4 months? Compare this to the total precipitation in 4 months for Coronado.

City	Average Annual Precipitation (in.)
Burbank	12
Coronado	9
Pasadena	20

Source: weatherbase.com

Burbank receives 12 in. of precipitation in 12 months (1 year). So, it receives 1 in. of precipitation in 1 month.

$$t = 1 \cdot m$$

$$t = m$$

In 4 months Burbank receives 4 in. of precipitation.

Coronado receives 9 in. of precipitation in 12 months. 4 is $12 \div 3$. Therefore, in 4 months,

Coronado receives $9 \div 3$ or 3 in. of precipitation.

$$4 - 3 = 1$$

Burbank receives 1 inch more precipitation than Coronado.

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25. **CHALLENGE** Write an equation to represent the function in the table.

	6	8	10	12	14	16
	0	1	2	3	4	5

Each output y is half the input x minus 3.

$$y = \frac{x}{2} - 3$$

27. The table shows admission prices at a local zoo based on the number of guests.

Number of Guests, x	Total Admission (\$), y
1	7
2	14
3	21
4	28

Which equation can be used to find y , the total admission for x guests?

- A $x = 7y$
B $y = 7 + x$
C $y = 7x$
D $x = 7 + y$

Each output y is 7 times the input x .

$$y = 7x$$

The answer is C.

29. Find the next two terms of the sequence 3, 11, 19, 27, ...

The pattern is: add 8.

The next two terms are $27 + 8$ or 35 and
 $35 + 8$ or 43.