

Prealgebra 1.5

Use multiple representations to represent functions
Translate among different verbal, tabular, graphical, and algebraic representations of functions

function $(x, \text{one partner})$

function table

* function rule

equation

activity: function machine

Sep 6-10:25 AM

http://nlvm.usu.edu/en/nav/frames_asid_191_p_4_t_2.html?from-category_p_4_t_2.html

run w IE

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Words, Equations, Tables, and Graphs

Why?
The table shows the time it should take a scuba diver to ascend to the surface from several depths to prevent sickness.

On grid paper, graph the data as ordered pairs (depth, time).

Write a rule to describe the relationship between the sets of numbers.

If a scuba diver is at a depth of 45, how many seconds should she take to ascend? Explain.

Depth (ft)	Time (s)
7.5	15
15	30
22.5	45
30	60

$\text{time} = \text{depth} \times 2$
 $\text{time} = 45 \cdot 2 = 90 \text{ s}$

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EXAMPLE 1 Make a Function Table

In a game of *What's My Rule?* Kinna picked the card shown at the right. Make a function table for four different input values and write an algebraic expression for the rule. Then state the domain and range of the function.

What's My Rule?
(double a number, then add three)

$2x + 3$

X	Y
5	13
10	23
3	9
12	27
D	R

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Check Your Progress

Jenna picked a game card with the function shown. Make a function table for four different input values and write an algebraic expression for the rule. Then state the domain and range of the function.

What's My Rule?
triple the number and subtract one

$3x - 1$

X	Y
4	11
18	53
20	59
2	5

D = 4, 18, 20, 2
R = 11, 53, 59, 5

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Concept Summary Multiple Representations

Words
(distance is equal to 60 miles per hour times the number of hours.)

Equation
 $d = 60t$

Table

Time (h)	Distance (mi)
1	60
2	120
3	180
4	240

Graph

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EXAMPLE 2 Use Multiple Representations

TECHNOLOGY The navigation message from a satellite to a GPS in an airplane is sent once every 12 minutes.

a. Write an equation to find the number of messages sent in any number of minutes.

$$\begin{array}{r} x \downarrow \\ 12 \overline{) 1} \\ 24 \\ \underline{36} \\ 3 \end{array}$$

$$12 \cdot \left(\frac{1}{12}\right) = 1$$

$$24 \cdot \left(\frac{1}{12}\right) = 2$$

$$36 \cdot \left(\frac{1}{12}\right) = 3$$

b. Make a function table to find the number of messages in 120, 180, 240, and 300 minutes. Then graph the ordered pairs.

$$y = \frac{1}{12}x$$

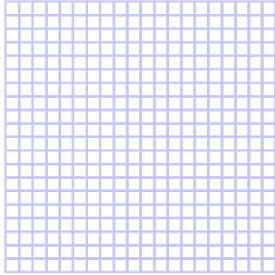
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Check Your Progress

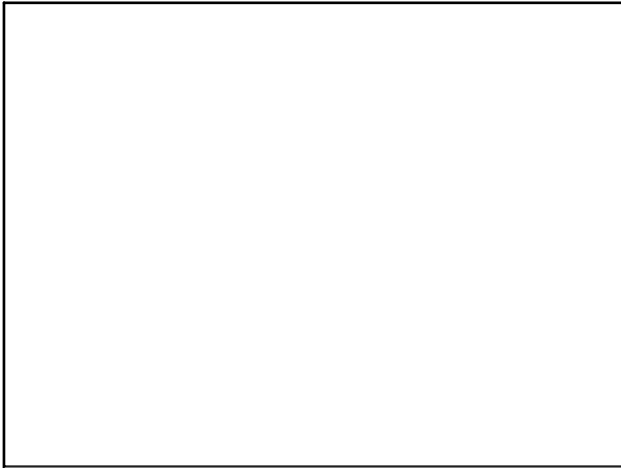
2. **MULTIPLE REPRESENTATIONS** The speed of sound is about 1088 feet per second at 32°F in dry air at sea level.

A. ALGEBRAIC Write an equation to find the distance traveled by sound for any number of seconds.

B. TABULAR Make a function table to find the distance sound travels in 0, 1, 2, and 3 seconds. Then graph.



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Attachments



function machine