MATH 1314-3100 College Algebra

6/8/20

Cutberto M, S.I

Homework:1.2- Functions

1)

Find f(4) for the function $f(x) = 2x^2 + 3x - 4$.

Which of the following operations can be used first to find f(4) for the given function?

- Step 1

A. Substitute the value 4 for f(x) and solve the equation.

B. Factor the given function.

C. Substitute the value of 4 into the equation every time that x appears.

D. Find the domain and range of the given function.

Step 2

Find f(4) for the function $f(x) = 2x^2 + 3x - 4$.

$f(4) = 2(4)^2 + 3(4) - 4$ Substitute.

Step 3

What is the next step?

A. Evaluate the expression using the principle of square roots.

B. Use the distributive law.

C. Evaluate the expression using the FOIL method.

D. Evaluate the expression using the order of operations.

Step 4

First, evaluate the square.

$$f(4) = 2(4)^2 + 3(4) - 4$$
$$= 2 \cdot 16 + 12 - 4$$

Step 5

Now simplify the expression on the right.

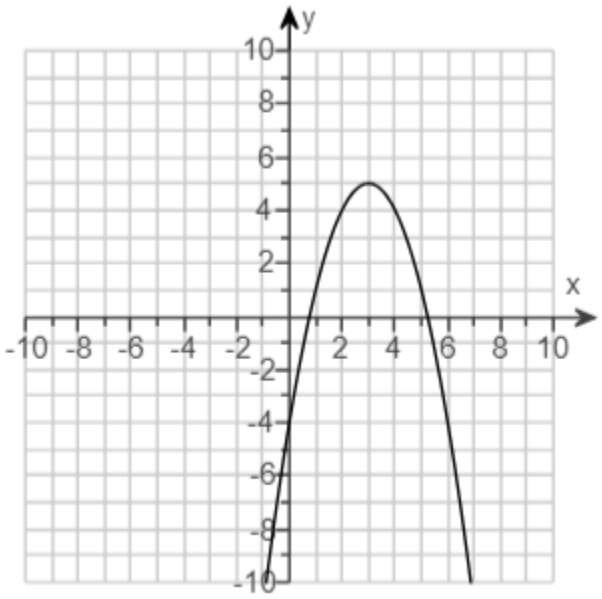
$= 32 + 12 - 4$	Multiply.
$= 44 - 4$	Add.
$= 40$	Subtract.

Therefore, f(4) is equal to 40.

2)

Use the graph at right to find the given function value by locating the input on the horizontal axis, moving directly up or down to the graph of the function, and then moving left or right to find the output on the vertical axis. Find f(1).

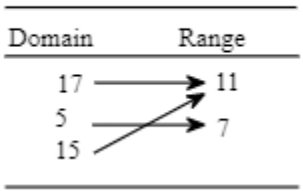
f(1) = ☐



- First find f(1) or y=1 then find x from there so
- F(1)=1

3)

Determine whether the correspondence is a function.



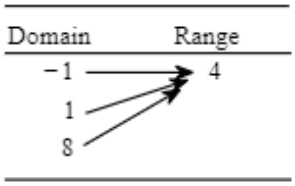
Is this correspondence a function?

- No
- Yes

- For the domain cannot have multiple ranges however the range can have multiple domains.

4)

Determine whether the correspondence is a function.

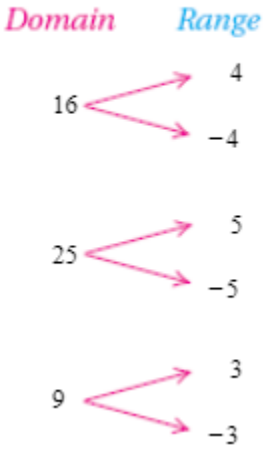


Is the correspondence a function?

- A. No, because an element in the domain corresponds to more than one element in the range
- B. No, because an element in the range corresponds to more than one element in the domain
- C. Yes, because each element in the range corresponds to exactly one element in the domain
- D. Yes, because each element in the domain corresponds to exactly one element in the range

5)

Determine whether the following correspondence is a function.



Is this correspondence a function?

- Yes
- No

a single domain cannot have multiple ranges

6)

Given the function k described by k(x) = x + 2, find each of the following.

k (0) = x + 2
0 + 2
= 2

k (-13) = x + 2
(-13) + 2
= -11

k (-4) = x + 2
(-4) + 2
= -2

k (8) = x + 2
= 10

k (c + 15) = x + 2
c + 15 + 2
= c + 17

7)

Given the function f described by f(x) = 6x, find each of the following.

(a) f(− 14)
(b) f(11)
(c) f(27)

- f (-14) = 6x
  6(-14)
  = -84

  Plug in 11 and 27 into x in the equation 6x
  f (11) = 66
  f (27) = 162

8)

Find the indicated outputs for $f(x) = 3x^2 - 5x$.

f (0) = $3x^2 - 5x$
$3(0)^2 - 5(0)$

= 0

Plug in and use the order of operation
f (-1) = 8
f (2) = 2

9)

A function f is given by $f(x) = |x| - 5$. Find each of the indicated function values.

(a) f(3) **(b)** f(4) **(c)** f(a + 5)

a) f (3) = $|x| - 5$
| 3 | - 5
3 -5
= -2

b) f (4) = -1

c) f (a + 5) = | a + 5 | - 5
a + 5 since we do not know what "a" is the whole thing stays the same
= | a + 5 | - 5

10)

Find the function values for $f(x) = x^3$.

a) f(0) **b)** f(− 1)

c) f(6) **d)** f(7)

e) f(− 3) **f)** f(− 5a)

- Plug in f(x) into the x in the equation and remember to place "( )" when you type it in the calculator

  f (0) = $(0)^3$

  = 0

  f (-1) = (-1) * (-1) * (-1)

  also, can be in this form

  = -1

  …….

  f(-5a) = (-5a) (-5a) (-5a)

  = -5* -5 * -5 * a *a * a

  = $-125a^3$

11)

The function A(s) given by A(s) = 0.295s + 56 can be used to estimate the average age of employees of a company in the years 1981 to 2009. Let A(s) be the average age of an employee, and s be the number of years since 1981; that is, s = 0 for 1981 and s = 9 for 1990. What was the average age of the employees in 2003 and in 2009?

- First A(s) = 0.295s + 56 is the equation we will use and 1981 is the starting point for it is = to "0"
- Thus, if we use subtraction 2003 – 1981 = 22= s
- A(s) = 0.295(22) + 56

  = 6.49 + 56

  = 62.49 or rounded = 62

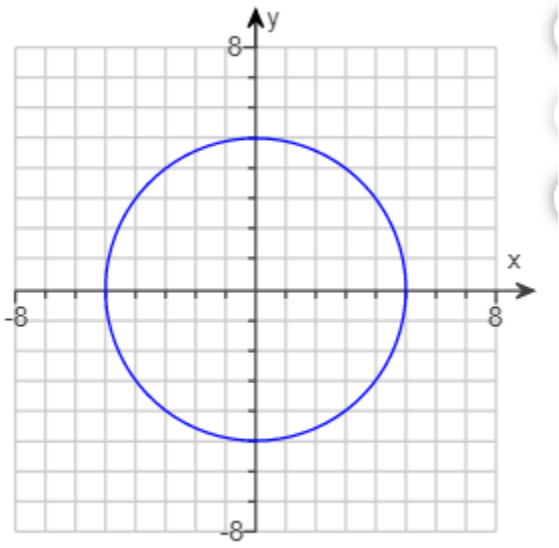
  The average age of the employees in 2003 is 62 years.
  (Round to the nearest whole number as needed.)

- Same format for the second. Subtract the years to get "s" then plug it into the formula

  The average age of the employees in 2009 is 64 years.
  (Round to the nearest whole number as needed.)

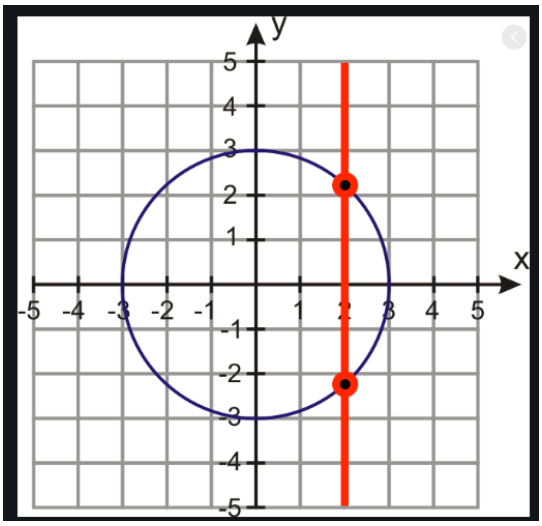
12)

Determine if a graph is a function.



if you place a straight edge (pencil or your finger vertical (parallel) to the y axis and there are more then one point hitting it then it is not. This is called a vertical line test

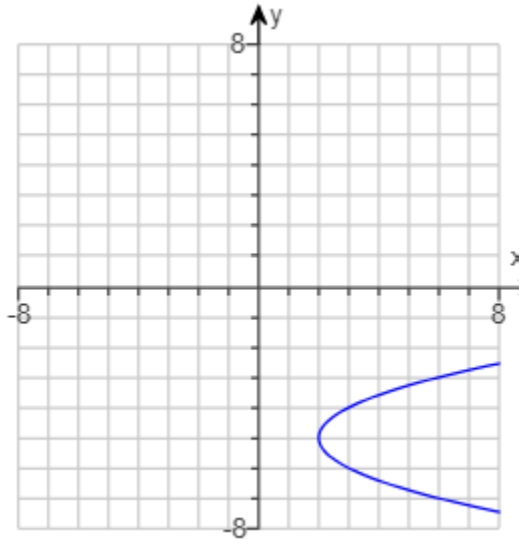
For example:



The vertical red line hits more than once so it is NOT a function.

13)

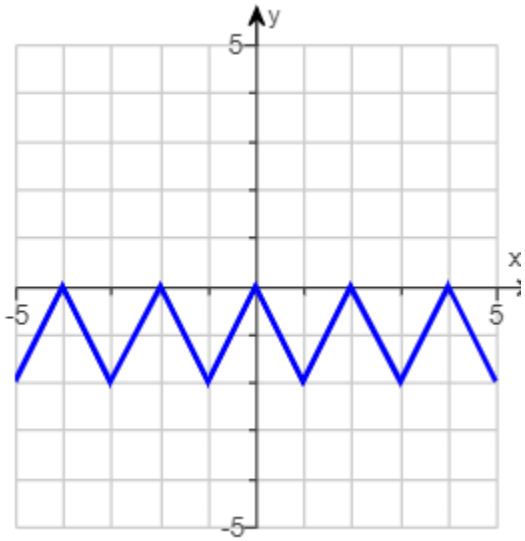
Determine if the graph is a function.



- see question 12 for example. Using the vertical line test. This is NOT a function. For the x plot points gets meet more than once.

14)

Determine whether the following is the graph of a function.



the domain is never hit more then once so Yes.