1.2 Functions and Function Notation – Worksheet

MCR3U

Jensen

1) For each function, determine $f(4)$, $f(-5)$, and $f\left(-\frac{2}{3}\right)$.

a) $f(x) = \frac{2}{5}x + 11$

b) $f(x) = 3x^2 + 2x + 1$

c) $f(x) = 2(x + 4)^2$

d) $f(x) = -6$

e) $f(x) = \frac{1}{x}$

f) $f(x) = \sqrt{x + 5}$

2) If $f(x) = x^2 + 2$, state the following.

a) $f(1)$ **b)** $f(0)$ **c)** $f(2)$

d) $f(-2)$ **e)** $f(3)$ **f)** $f\left(\frac{1}{2}\right)$

3) State $f(4)$ for each of the following functions.

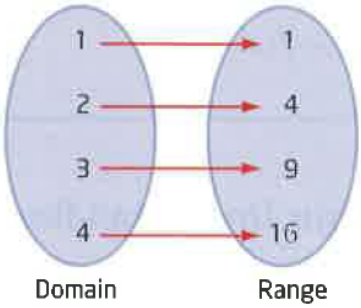
a) $f(x) = 4 + 5x$ **b)** $f(x) = x^2 - 6$ **c)** $f(t) = 9 - t$

d) $f(x) = 10$ **e)** $f(z) = z^3$ **f)** $f(x) = 8(5 - x)$

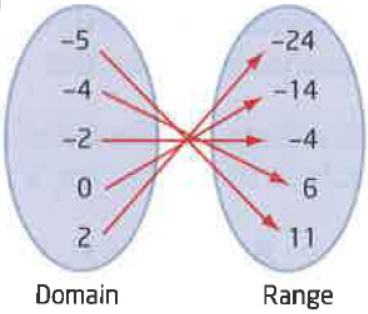
g) $f(x) = \frac{1}{x}$ **h)** $f(x) = \sqrt{13 - x}$ **i)** $f(t) = \frac{1}{t^2}$

4) Write the ordered pairs associated with each mapping diagram. Then state if the relation is a function.

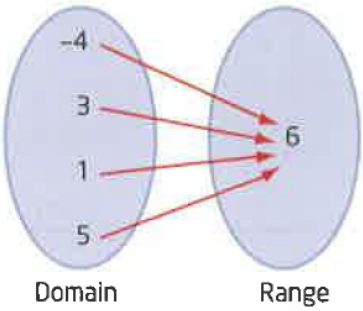
a)



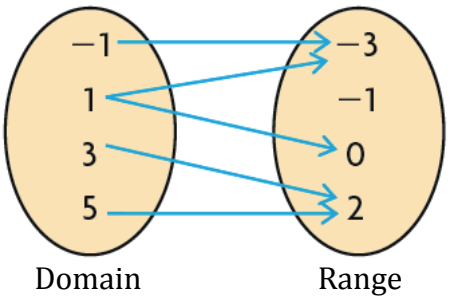
b)



c)



d)



5) Show each set of data in a mapping diagram. Then state if the relation is a function.

a) $\{(1,4),(2,1),(3,-2),(4,-5),(5,-8),(6,-11),(7,-14),(8,-17)\}$

b) $\{(-3,4),(-2,-1),(-1,-4),(0,-5),(1,-4),(2,-1)\}$

c) $\{(-5,6),(-4,9),(-3,1),(-5,-6),(1,-2),(3,8),(8,8)\}$

d) $\{(9,9),(7,9),(5,9),(3,9)\}$

6) State the domains of the following functions

a) $f(x)=\sqrt{8-x}$

b) $f(x)=\frac{x^2+3}{(x-1)(x+3)}$

Answers

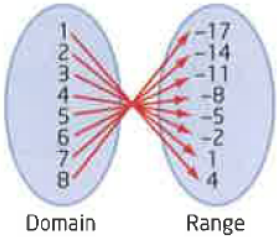
1) a) $\frac{63}{5}$, 9, $\frac{161}{15}$ **b)** 57, 66, 1 **c)** 128, 2, $\frac{200}{9}$ **d)** -6, -6, -6 **e)** $\frac{1}{4}, -\frac{1}{5}, -\frac{3}{2}$ **f)** 3, 0, $\sqrt{\frac{13}{3}}$

2) a) 3 **b)** 2 **c)** 6 **d)** 6 **e)** 11 **f)** $\frac{9}{4}$

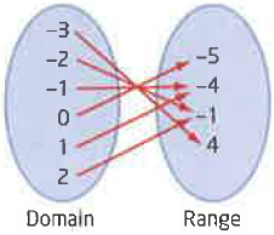
3) a) 24 **b)** 10 **c)** 5 **d)** 10 **e)** 64 **f)** 8 **g)** $\frac{1}{4}$ **h)** 3 **i)** $\frac{1}{16}$

4) a) $\{(1,1),(2,4),(3,9),(4,16)\}$ this relation is a function
b) $\{(-5,11),(-4,6),(-2,-4),(0,-14),(2,-24)\}$ this relation is a function
c) $\{(-4,6),(3,6),(1,6),(5,6)\}$ this relation is a function
d) $\{(-1,-3),(1,-3),(1,0),(3,2),(5,2)\}$ this relation is NOT a function

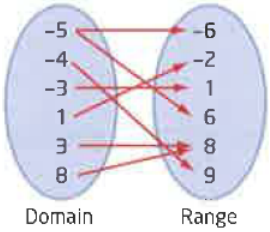
5) a) function



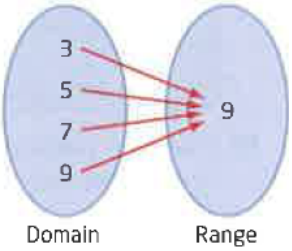
b) function



c) Not a function



d) function



6) a) $\{X \in \mathbb{R} | x \leq 8\}$ **b)** $\{X \in \mathbb{R} | x \neq 1, x \neq -3\}$