

UNIT 1: DAY 2 HOMEWORK

P. 105 #1-6, 9, 11, 15, 19, 23, 27, 35, 38, 45, 51, 55, 57, U1, U2, U3, 75, 74, 85

- #1. domain, range, function
- #2. independent, dependent
- #3. No. The x input has more than one output
- #4. substitute $x+1$
- #5. No. Cannot take root of negative $\sqrt{-2} \rightarrow \sqrt{-1}$
- #6. explicitly described

#9. No. The National Football Conference is assigned to three elements in the range: Giants, Saints, and Seahawks. The domain of the American Football Conference is also assigned to three elements in the range. The inputs have more than one output.

#11. Yes. Every input has one output.

- #15. (a) Function
(b) Not. Input of the x -value 1 has two outputs
(c) Not. The pair $(-2, 3)$ makes it not a function from A to B . It is a function from B to A .

#19. No.

#23. Yes.

#27. Yes.

#25. $f(y) = 3 - \sqrt{y}$

(a) $f(4) = 3 - 2$
 $= \underline{\underline{1}}$

(b) $f(0.25) = 3 - 0.5$
 $= \underline{\underline{2.5}}$

(c) $f(4x^2) = 3 - \sqrt{4x^2}$
 $= \underline{\underline{3 - 2|x|}}$

#38. $g(t) = \frac{2t^2 + 3}{t^2}$

(a) $g(2) = \frac{2(2)^2 + 3}{4} = \frac{11}{4}$ (b) $g(0) = \frac{2(0)^2 + 3}{0} = \text{undefined}$ (c) $g(-x) = \frac{2(-x)^2 + 3}{(-x)^2} = \frac{2x^2 + 3}{x^2}$

#45. $f(x) = \begin{cases} x+2 & x < 0 \\ 4 & 0 \leq x < 2 \\ x^2+1 & x \geq 2 \end{cases}$

(a) $f(-2) = -2+2 = 0$ (b) $f(0) = 4$ (c) $f(2) = 2^2+1 = 5$

#51. $h(t) = \frac{1}{2}|t+3|$

t	-5	-4	-3	-2	-1
h(t)	1	$\frac{1}{2}$	0	$\frac{1}{2}$	1

#55. $f(x) = \frac{9x-4}{5}$. $\frac{9x-4}{5} = 0$

$9x-4=0$

$9x=4$

$x = \frac{4}{9}$

#57. All \mathbb{R}

#61. All \mathbb{R} FYI: YOU CAN CUBE ROOT NEGATIVES

#62. All \mathbb{R} ; $-3 < x < 0$

#63. All \mathbb{R} ; $x \neq 0, -2$

#75. $A = 2xy$
 $A = 2x\sqrt{36-x^2}$

Domain: $0 < x < 6$

No negative areas

No zero areas

Positives only and restricted.