

# HOMWORK 1

SECTION 1.1 (FUNCTIONS) 3, 21, 28, 32, 35

1.  $D: [-2, -1, 1, 2]$  ✓  
 $R: [-7]$  ✓  
FUNCTION

21. NOT A FUNCTION  
(x crosses more than 1 y)

28.  $R(x) = \frac{4x + 2}{2x - 1}$

(A)  $R(0) = \frac{4(0) + 2}{2(0) - 1}$   
 $= \frac{2}{-1}$   
 $= -2$  ✓

(B)  $R(1) = \frac{4(1) + 2}{2(1) - 1}$   
 $= \frac{4 + 2}{2 - 1}$   
 $= \frac{6}{1}$   
 $= 6$  ✓

(C)  $R(3) = \frac{4(3) + 2}{2(3) - 1}$   
 $= \frac{12 + 2}{6 - 1}$   
 $= \frac{14}{5}$  ✓

(D)  $R(-1) = \frac{4(-1) + 2}{2(-1) - 1}$   
 $= \frac{-2}{-3}$   
 $= \frac{2}{3}$  ✓

$$32. f(x) = x + \frac{1}{x}$$

$$\textcircled{A.} f(1) = 1 + \frac{1}{1} \\ = 2 \checkmark$$

$$\textcircled{B.} f(-1) = -1 + \frac{1}{-1} \\ = -1 + -1 \\ = -2 \checkmark$$

↓ D

→

$$\textcircled{C.} f(2) = 2 + \frac{1}{2} \\ = 2\frac{1}{2} = \frac{5}{2}$$

$$\textcircled{D.} f(-4) = -4 + \frac{1}{-4} \\ = -4\frac{1}{4} = -\frac{17}{4}$$

$$\textcircled{35.} f(x) = 3\sqrt{x-1} + 4$$

$$\textcircled{A.} f(1) = 3\sqrt{1-1} + 4 \\ = 3 \cdot 0 + 4 \\ = 4 \checkmark$$

$$\textcircled{B.} f(5) = 3\sqrt{5-1} + 4 \\ = 3\sqrt{4} + 4 \\ = 3 \cdot 2 + 4 \\ = 6 + 4 \\ = 10 \checkmark$$

$$\textcircled{C.} f(10) = 3\sqrt{10-1} + 4 \\ = 3\sqrt{9} + 4 \\ = 3 \cdot 3 + 4 \\ = 9 + 4 \\ = 13 \checkmark$$

$$\textcircled{D.} f(17) = 3\sqrt{17-1} + 4 \\ = 3\sqrt{16} + 4 \\ = 3 \cdot 4 + 4 \\ = 12 + 4 \\ = 16 \checkmark$$

HOMWORK 1  
SECTION 2 (LINEAR EQUATIONS) (15, 16, 17, 20, 22)

$$15. \frac{1}{2}(2x-3)+5 = \frac{1}{3}(3x+4)$$

$$x - \frac{3}{2} + 5 = x + \frac{4}{3} \checkmark$$

$$\cancel{-x} - \frac{3}{2} = \cancel{-x} + \frac{4}{3}$$

$$0 = \frac{29}{6}$$

NO SOLUTION ✓

$$16. \frac{3x}{5} - \frac{1}{10}x = x - 5$$

$$\frac{1}{2}x = x - 5$$

$$\cancel{-\frac{1}{2}x} = -5$$

$$\boxed{x=5} \checkmark$$

$$17. \frac{1}{9}(x+18) + \frac{1}{3}(2x+3) = x+3$$

$$\frac{1}{9}x + 2 + \frac{2}{3}x + 1 = x + 3$$

$$\frac{7}{9}x + 3 = x + 3 \checkmark$$

$$\cancel{-\frac{7}{9}x} = 0$$

$$\boxed{x=0} \checkmark$$

$$20. \quad \frac{-5x - (x - 1)}{2} = \frac{1}{4}(x + 1)$$

$$\frac{-5x - x + 1}{2} = \frac{1}{4}x + \frac{1}{4} \checkmark$$

$$\frac{-11x + 1}{2} = \frac{1}{4}x + \frac{1}{4}$$

$$\therefore \frac{-25x}{12} = -\frac{1}{4} \checkmark$$

$$\boxed{x = \frac{3}{25}} \checkmark$$

$$22. \quad \frac{1}{3}(x + 3) + \frac{1}{2}(x - 6) = x + 3$$

$$\frac{1}{3}x + 1 + \frac{1}{2}x - 3 = x + 3 \checkmark$$

$$\frac{1}{2}x = x + 3 \checkmark$$

$$-\frac{1}{2}x = 3 \checkmark$$

$$\boxed{x = -6} \checkmark$$