

Ley Zaragsty P5 I M3 STEM Homework 1.1.2

#1-15

a) $x\text{-int} = (-5, 0), (2, 0), (6, 0)$, $D: -5 \leq x \leq 7$
 $R: -4 \leq y \leq 10$.

→ ~~Not~~ No it is possible to have multiple functions from those like

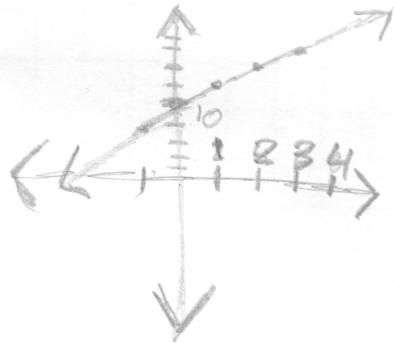


b) $x\text{-int} = (-4, 0), (2, 0)$, $D: \mathbb{R}$, $R: y \geq 8$

- No there cannot be more than one function for these directions, because of the Range and Domain restrictions.

#1-16

x	y
0	10
1	12
2	14
3	16
4	18
5	20
6	22
7	24



$$y = 2x + 10$$

1-17 $f(x) = y = \frac{1}{x}$

a) $f(\frac{1}{2}) = 2$, b) $f(\frac{1}{10}) = 10$, c) $f(\frac{1}{100}) = 100$, d) $f(\frac{1}{1000}) = \frac{1000}{1}$

1-18 Terri's project for the math fair is a magnificent black box that she called the Function Factory Machine. $3 \rightarrow 8, 10 \rightarrow 29, 20 \rightarrow 59$

a) $5 \rightarrow 14, -1 \rightarrow -4$

b) $y = 3x - 1$

1-19

a) $(x-5)(x-3)=0 \quad x=+5, x=3$, b) $2x^2 - 5x - 6 = 0$

$$\frac{5 \pm \sqrt{25+48}}{4} = \frac{5 \pm 7}{4}$$

$$\frac{12}{4} = 3 \quad (x-3)(x+1)$$

$$-\frac{2}{4} = -\frac{1}{2}$$

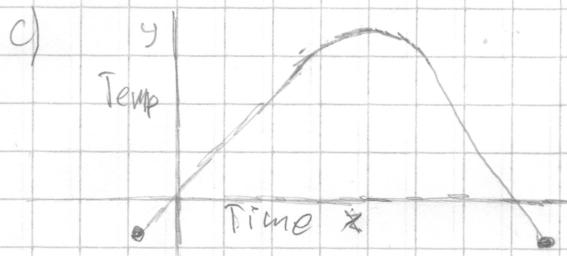
1-20

a) the time of day is independent

b) the temperature is dependent on time of day

Dependent

Independent



1-21

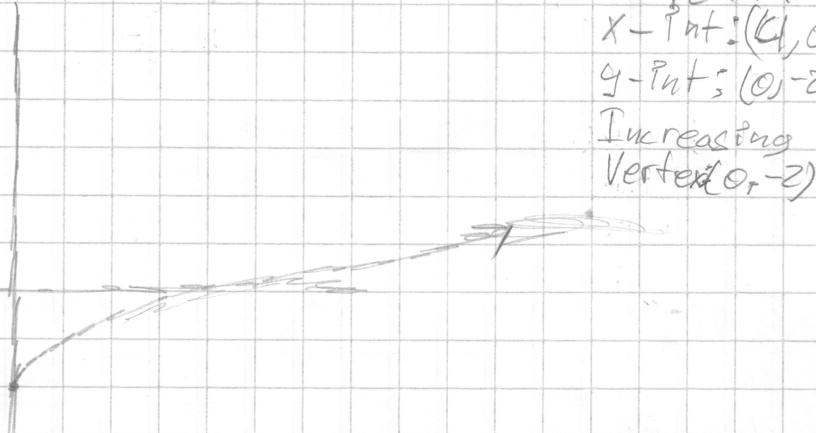
a) ~~$x^2 - x + 2$~~ , ~~$(x-4)(x+8)$~~ b) $6x^2 + 48x = 6x(x+8)$

~~Not~~

c) $x^2 - 8x + 16 = (x-4)^2$

d) $(x-7)(x+7)$

1-22



Shape: Parabolic

X-Int: $(4, 0)$

Y-Int: $(0, -2)$

Increasing

Vertex: $(0, -2)$

1-23

$$\text{a) } (x+13)(x-7)=0, \quad \text{b) } (2x+3)(\cancel{3x}-7)=0, \quad \text{c) } x(x-3)=0$$

$$x=-13, x=7 \quad x=-\frac{3}{2}, x=\frac{7}{3} \quad x=0, x=3$$

$$\text{d) } x^2-5x=0 \\ x(x-5)=0 \\ x=0, x=5$$

$$\text{e) } x^2-2x-35=0 \\ (x-7)(x+5)=0 \\ x=7, x=-5$$

$$\text{f) } 3x^2+14x-5=0 \\ (x+5)(\cancel{3x}-1) \\ x=-5, x=\frac{1}{3}$$

1-24 $F(x)=\frac{1}{x-2}$

$$\text{a) } F(2.5)=2 \quad , \quad \text{b) } F(\frac{7}{4})=\cancel{\frac{1}{\frac{7}{4}}}\left(\frac{7}{4}-2\right)^{-1}=\left(-\frac{1}{2}\right)^{-2}=-4$$

c) $F(2)$ = Undefined, d) You cannot divide by zero

1-25 $F(x)=-\frac{2}{3}x+3, \quad g(x)=2x^2-5$

$$\text{a) } F(3)=-2+3=\boxed{1} \quad \text{b) } F(x)=-5 \\ -\frac{2}{3}x+3=-5 \\ -\frac{2}{3}x=-8 \\ -2x=-24 \\ \boxed{x=12}$$

$$\text{c) } g(-3)=2\cancel{(-3)}^9-5 \\ 2(9)-5=18-5= \\ =\boxed{13}$$

$$\text{d) } g(x)=-7 \\ 2x^2+5=-7 \\ 2x^2=-12 \\ x^2=-6 \\ \text{∅}$$

$$\text{e) } g(x)=8 \\ 2x^2+5=8 \\ 2x^2=3 \\ x^2=\frac{1}{2} \\ x=\pm\sqrt{0.5}$$

$$\text{f) } g(x)=9 \\ 2x^2+5=9 \\ 2x^2=4 \\ x^2=2 \\ x=\pm\sqrt{2}$$

1-26

It cubes the input

1-28

$$\text{a) } 3.4x-2.1=11.2x+51-7 \quad \text{b) } \frac{1}{5}x-2=\frac{13}{25}-0.7x \\ 7.3x=53.8 \\ x \approx 7.37$$

$$\text{c) } 2+\frac{2}{x}=3 \\ 2x+2=3x \\ x=2$$

$$\frac{1}{5}x-2=\frac{13}{25}-0.7x \\ 5x-50=13-17.5x \\ 22.5x=63 \\ x=2.8$$

$$\text{d) } x+\frac{3}{4}=4+2x \\ 4x+3=16+8x \\ 4x=-13 \\ x=-\frac{13}{4}$$