

A 1. $i(g(3))^5$

$g(3)$	$i(5)$
$g(x) = \frac{4x-2}{2}$	$i(x) = 3x + x + x + x$
$g(3) = \frac{4(3)-2}{2}$	$i(5) = 3(5) + 5 + 5 + 5$
$= \frac{12-2}{2}$	$i(5) = 15 + 5 + 5 + 5$
$= \frac{10}{2}$	$= 30$
$= 5$	

$$\begin{array}{r} C2. \quad h(8) - g(8) \\ 79 \quad - \quad 15 \\ \hline 64 \end{array}$$

$$\begin{aligned} h(8) \\ h(x) &= 3(x-3)^2 + 4 \\ h(8) &= 3(8-3)^2 + 4 \\ h(8) &= 3(5)^2 + 4 \\ h(8) &= 3(25) + 4 \\ h(8) &= 75 + 4 \\ h(8) &= 79 \end{aligned}$$

$$\begin{aligned} g(8) \\ g(x) &= \frac{4x-2}{2} \\ g(8) &= \frac{4(8)-2}{2} \\ &= \frac{32-2}{2} \\ &= \frac{30}{2} \\ &= 15 \end{aligned}$$

$$B 3. \quad i(x) = 18$$

$$\begin{aligned}i(x) &= 3x + x + x + x \\18 &= 3x + x + x + x \\18 &= 6x \\ \frac{18}{6} &= \frac{6x}{6} \\3 &= x\end{aligned}$$

$$A 4. \quad h(x) = 151$$

$$\begin{aligned}h(x) &= 3(x-3)^2 + 4 \\151 &= 3(x-3)^2 + 4 \\147 &= 3(x-3)^2 \\ \frac{147}{3} &= \frac{3(x-3)^2}{3} \\49 &= (x-3)^2 \\ \sqrt{49} &= \sqrt{(x-3)^2} \\7 &= x-3 \\10 &= x\end{aligned}$$

$$\begin{array}{r} 3 \\ \overline{)49} \\ 7^3 = x-3^3 \\ 10 = x \end{array}$$

5. $h(7) - g(i(2))$

$$52 - 23$$

29

$$\begin{array}{l} h(x) = 3(x-3)^2 + 4 \\ h(7) = 3(7-3)^2 + 4 \\ h(7) = 3(4)^2 + 4 \\ h(7) = 3(16) + 4 \\ h(7) = 48 + 4 \\ h(7) = 52 \end{array} \left\{ \begin{array}{l} i(x) = 3x + x + x + 2 \\ i(2) = 3(2) + 2 + 2 + 2 \\ i(2) = 6 + 2 + 2 + 2 \\ i(2) = 12 \end{array} \right. \left. \begin{array}{l} g(x) = \frac{4x-2}{2} \\ g(12) = \frac{4(12)-2}{2} \\ = \frac{48-2}{2} \\ = \frac{46}{2} \\ = 23 \end{array} \right.$$

6. Domain	Range	function / Non f.
a) $x \in \mathbb{R}$	$y \geq -2, y \in \mathbb{R}$	F
b) $-4 \leq x \leq 4, x \in \mathbb{R}$	$-2 \leq y \leq 5, y \in \mathbb{R}$	NF
c) $-3 \leq x \leq 4, x \in \mathbb{I}$	$-2 \leq y \leq 6, y \in \mathbb{I}$	F

7. Rate of Change	a)	b)	c)
Initial Amount	$\frac{3}{2}$	$-\frac{4}{2} = -2$	$\frac{3}{1}$
Equation	$y = mx + b$	$y = mx + b$	$y = mx + b$
	$y = \frac{3}{2}x + 3$	$y = \frac{-2}{1}x + 6$	$y = \frac{3}{1}x - 3$

0

$y = \frac{3}{2}x + 3$ | $y = \frac{-2}{1}x + 6$ | $y = \frac{+3}{1}x - 3$

8. a) Jaden started at zero.

b) Domain: $\{0 \leq x \leq 2800, x \in \mathbb{R}\}$

Range: $\{0 \leq y \leq 6000, y \in \mathbb{R}\}$

c) Rate of Change = $\frac{\text{rise}}{\text{run}}$
 $= \frac{6000}{2800}$
 $= 2.14 \text{ m/revolutions}$

Jaden travels 2.14m for every revolution of the tire.

d) $y = mx + b$
 $y = 2.14x + 0$

9.

a) The "initial amount" is -800 .

$$\begin{aligned} \text{b) Rate of change} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{800}{200} \\ &= 4 \text{ dollars/hat} \end{aligned}$$

c) $y = mx + b$

$$y = 4x - 800$$

$$y = 4(221) - 800$$

$$y = 884 - 800$$

$$y = 84$$

You would make \$84
by selling 221 hats.

d) $y = mx + b$

$$y = 4x - 800$$

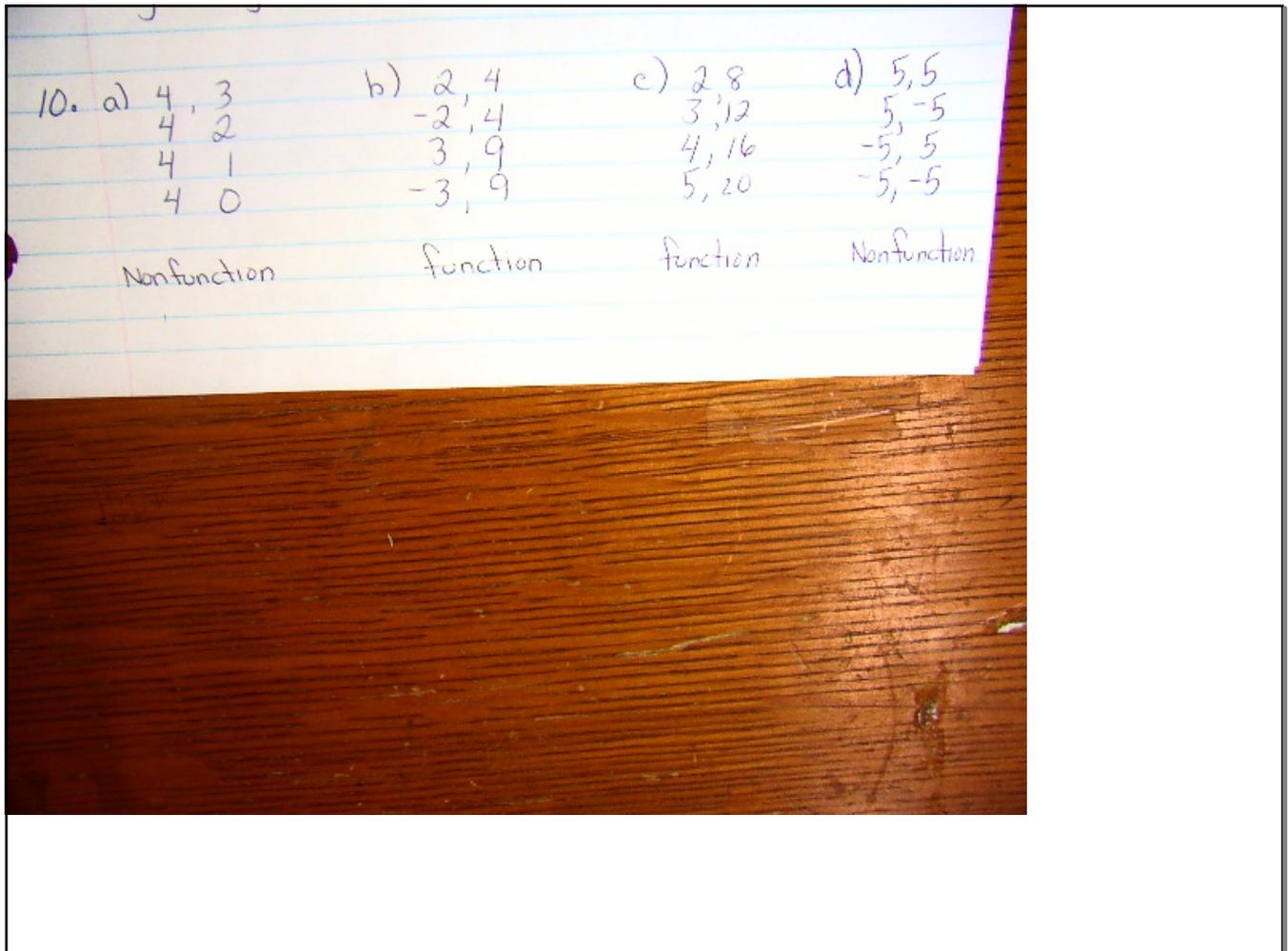
$$1200 = 4x - 800$$

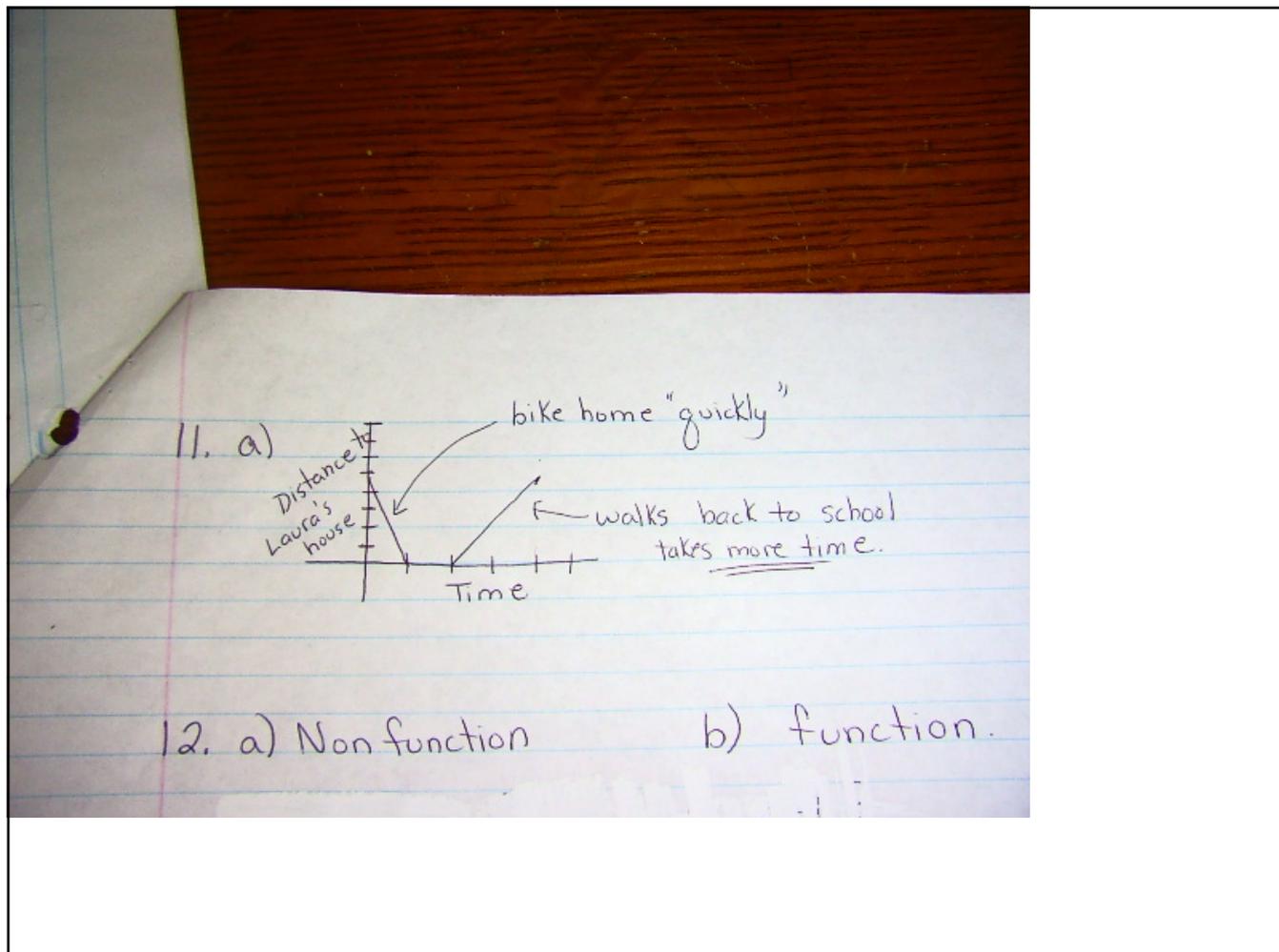
$$2000 = 4x$$

$$\frac{2000}{4} = \frac{4x}{4}$$

$$500 = x$$

You would need to sell
500 hats.





13.

Graphs:

a) $y = mx + b$

$y = \frac{3}{2}x + 4$

$y = 1.5x + 4$

b) $y = mx + b$

$y = \frac{4}{2}x + 8$

$y = \frac{2}{1}x + 8$

c) $y = mx + b$

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

Questions:

a) Graph "a"

b) Graph "b"

c) Graph "b"

d) Graph "c"