

Name: **Test #1**

CA

Date: **Key**

$$x(x-6) = 4(x+6)$$

$$x^2 - 6x = 4x + 24$$

$$x^2 - 10x - 24 = 0$$

$$(x-12)(x+2) = 0$$

$$x=12 \quad x=-2$$

$$\boxed{\{-2, 12\}}$$

6.

	$2x^2$	$+3x$	-1
x	$2x^3$	$3x^2$	$-x$
$+1$	$2x^2$	$3x$	-1

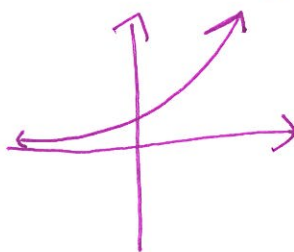
$$\boxed{2x^3 + 5x^2 + 2x - 1}$$

2. not m

$$\boxed{\{(2,3), (2,4), (4,5), (4,6)\}}$$

2 output 3 same input

7. $f(x) = 3^x$



3. $f(x) = |3x-4|+2$

$$f(-10) = |3(-10)-4|+2$$

$$= |-30-4|+2$$

$$= |-34|+2 = \boxed{36}$$

8. 10, 20, 40, 80, ...

$$a_n = a_1 \cdot r^{n-1}$$

$$\boxed{a_n = 10 \cdot (2)^{n-1}}$$

4. 65, 90, 100, 72, 88, 55, 73

55, Q_1 65, 72, M 73, 88, Q_3 90, 100

$$\boxed{Q_1 = 65}$$

9. $b^2 + 9b + 14$

$$\boxed{(b+7)(b+2)}$$

5. $2x+x-1$ $3x^2-5x$

$4x^2$ $9x^2-4x-1$

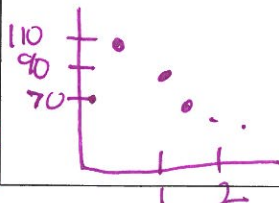
$5x^2+2x+1$

$-9x^2+4x+1$

Per = $5x^2+2x+1$ $\boxed{-4x^2+6x+2}$

10.

$$\boxed{m = -40h + 130}$$



Per = $5x^2+2x+1$ $\boxed{-4x^2+6x+2}$

11.

$$y = ax^2 + bx + c$$

a pos ↻

3

16. $x = \text{the } \#$

$$2x - 7 > 5 + x$$

$$x > 12$$

13

4

12.

$h(x) = \# \text{ hrs person}$
to assemble x sets of ties

Domain

Set of non-negative integers

4

19.

$$\frac{54}{137} = .3941$$

123910

13.

$$(10)^2 + (24)^2 = (26)^2$$

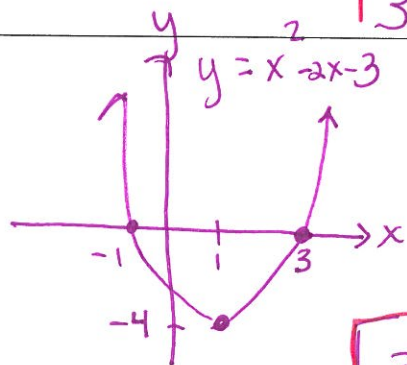
$$100 + 576 = 676$$

$$676 = 676$$

10, 26, 24

1

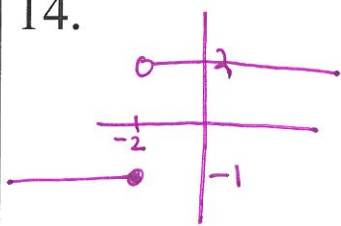
18.

inc $x > 1$ neg
 $-1 < x < 3$ 

3

3

14.



$$f(x) = \begin{cases} 2, & x > -2 \\ -1, & x \leq -2 \end{cases}$$

2

$$f(1) = 16$$

$$f(n) = f(n-1) + 2n$$

16, 20, 26, 34

$$f(2) = 16 + 2 \cdot 2 = 20$$

$$f(3) = 20 + 2 \cdot 3 = 26$$

$$f(4) = 26 + 2 \cdot 4 = 34$$

4

15.

$$p(t) = 2000(1.05)^t$$

$$p(2) = 2205$$

$$p(5) = 2552.56$$

$$\frac{2552.56 - 2205}{5 - 2}$$

$$= 115.83$$

116

1

20.

$$m = -\frac{1}{2} \quad (6, -6)$$

$$y + 6 = -\frac{1}{2}(x - 6)$$

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

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

1

21. spends \$50 mat'l
sells ea \$25
 $P(x) = 25x - 50$

✓4

23. $y = -x^2 + 4x + 6$

$x = \frac{-b}{2a} = \frac{-4}{2(-1)} = 2$

$(2, 10)$

✓2

22. $x^4 - y^4$

$(x^2 + y^2)(x^2 - y^2)$

$(x^2 + y^2)(x + y)(x - y)$

✓1

24. $y - x = 4$ $y = x + 4$

$y + 2x = 1$

$3x = -3$
 $x = -1$

$x + 4 + 2x = 1$

$3x + 4 = 1$

$(-1, 3)$

✓1

Part II

25. avg rate of change

$\frac{184 - 128}{5 - 1} = \frac{56}{4}$

$\$14.00$

26. $2x^3 - 2x^2 - 12x$

$2x(x^2 - x - 6)$

$2x(x - 3)(x + 2)$

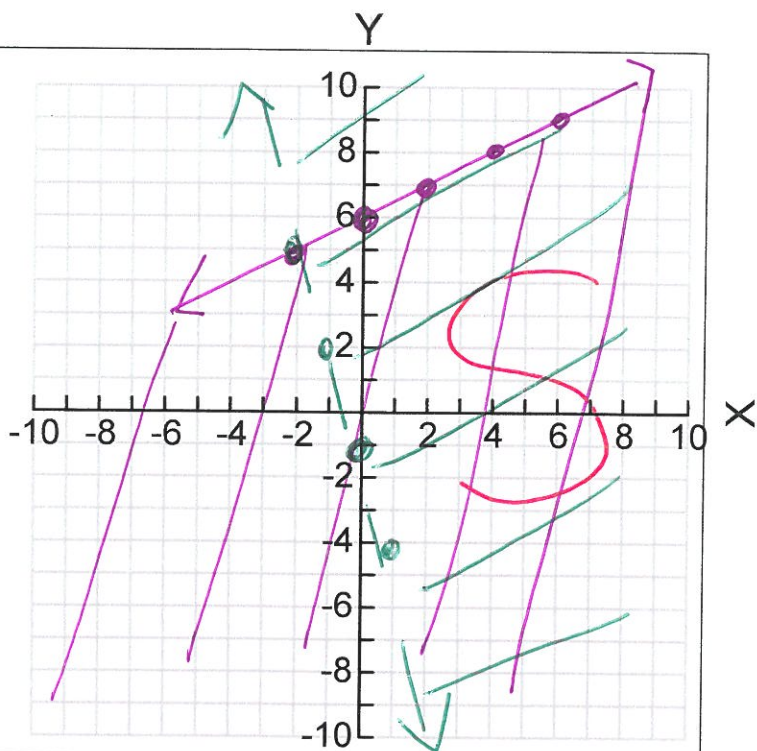
27.

$$y \leq \frac{1}{2}x + 6$$

$$y > -3x - 1$$

Ans vary
a pt in soln set

$$(4, 0)$$



28.

$$2x^2 + 4x - 16 = 0$$

$$x^2 + 2x - 8 = 0$$

$$(x+4)(x-2) = 0$$

$x+4=0$	$x-2=0$
$\frac{-4 \quad -4}{\hline}$	$\frac{+2 \quad +2}{\hline}$
$x = -4$	$x = 2$

$$\{-4, 2\}$$

29.

Let $x =$ the number

$$16(x-4) = 208$$

$$16x - 64 = 208$$

$$\quad \quad +64 \quad +64$$

$$\frac{16x = 272}{16 \quad 16}$$

$$x = 17$$

$$\begin{array}{r} 16x = 272 \\ -64 \\ \hline 16x = 272 \end{array}$$

30.

$$3x - 2 = -x - 6$$

$$y_1 = 3x - 2$$

$$3(-1) - 2 = -(-1) - 6$$

$$y_2 = -x - 6$$

$$-3 - 2 = 1 - 6$$

$$(-1, -5)$$

$$-5$$

✓

$$-5$$

She is correct $x = -1$

31.

$$f(x) = \begin{cases} 3x^2 - 1, & x < 1 \\ x + 2, & x \geq 1 \end{cases}$$

$$f(-2) = 3(-2)^2 - 1$$

$$= 3(4) - 1$$

$$12 - 1 = 11$$

$$f(-2) = 11$$

32.

$$f(x) = x^2 - 2x + 8$$

$$y = x^2 - 2x + 8$$

$$y - 7 = (x - 1)^2$$

$$y - 8 = x^2 - 2x$$

$$y = (x - 1)^2 + 7$$

$$y - 8 + \underline{1} = x^2 - 2x + \underline{1}$$

$$f(x) = (x - 1)^2 + 7$$

$$V(1, 7)$$

Part III

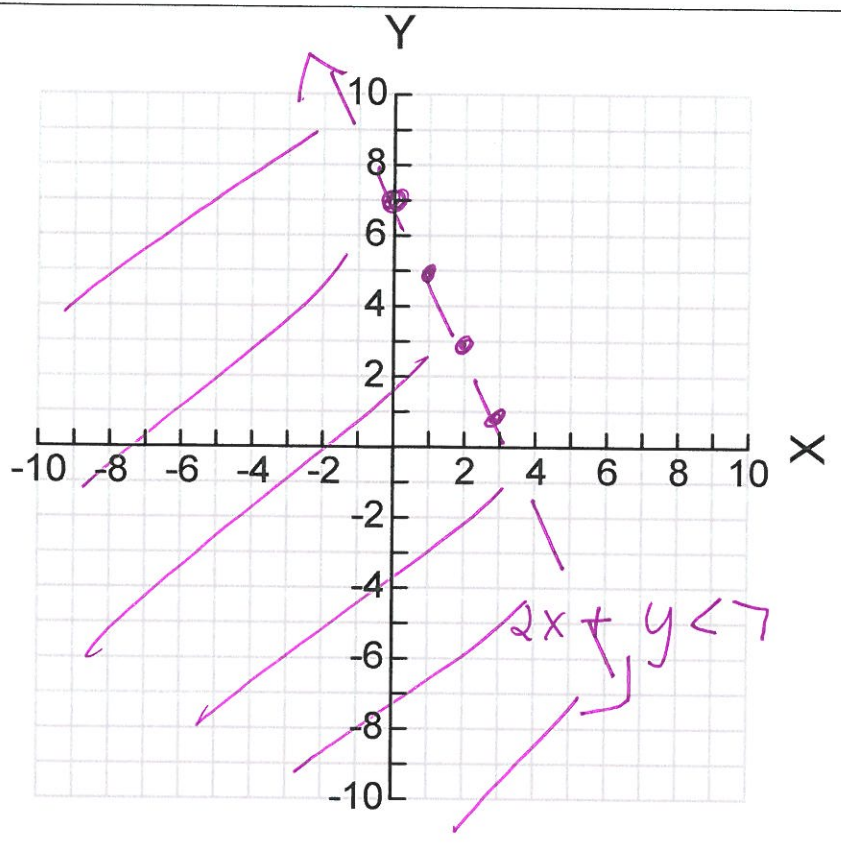
33.

$$2x + y < 7$$

$$y < -2x + 7$$

(0, 10)

ans. vary



34.

$$w = -3m + 205$$

a) 205 lbs - starting weight

b) 3 lbs/month - losing

$$c) \begin{array}{r} 160 = -3m + 205 \\ -205 -205 \\ \hline -45 = -3m \end{array} \quad \begin{array}{l} \text{lose 45 lbs} \\ 205 - 45 \end{array}$$

$$-45 = -3m$$

$$15 = m$$

15 months

Part III

35.

a)

4, 8, 16, 32, 64

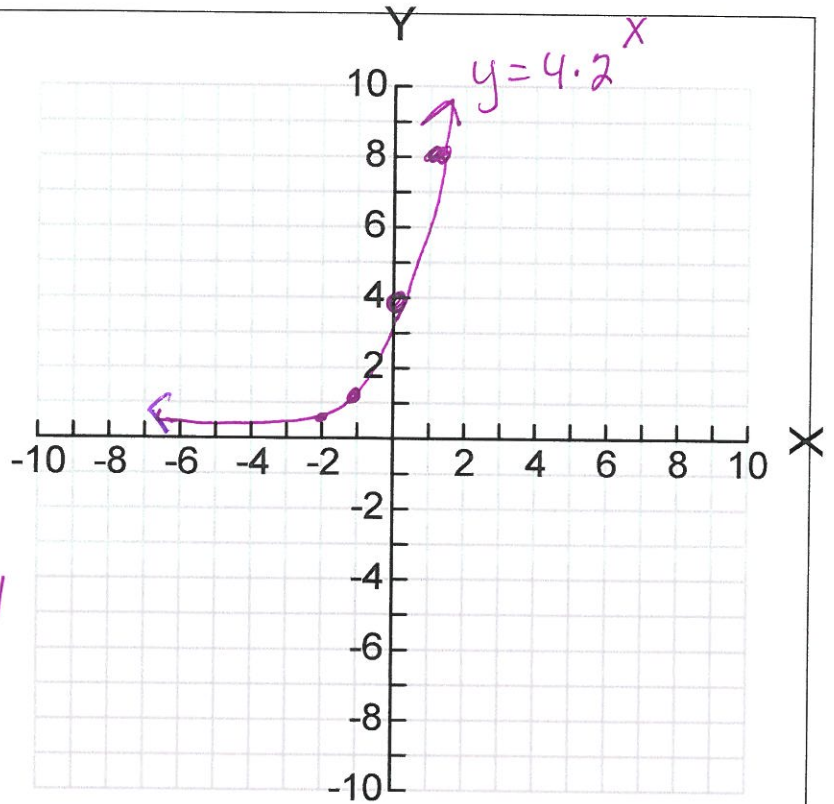
↑ ↑ ↑ ↑ ↑

$t=0$ $t=1$ $t=2$ $t=3$ $t=4$

after 4 years

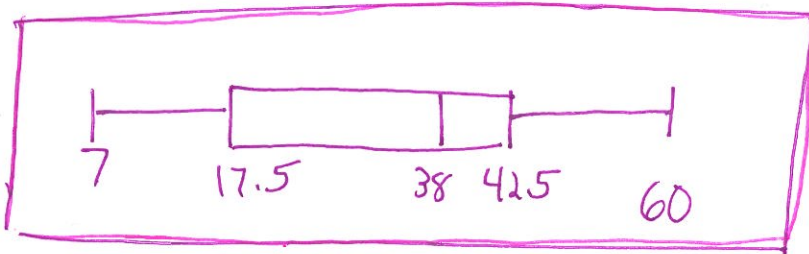
b) $a(t) = 4 \cdot 2^{t-1}, t \geq 1$

$y = 4(2)^x$



36.

40, 25, 20, 15, 40, 40, 45, 60, 7, 10, 52, 34, 38



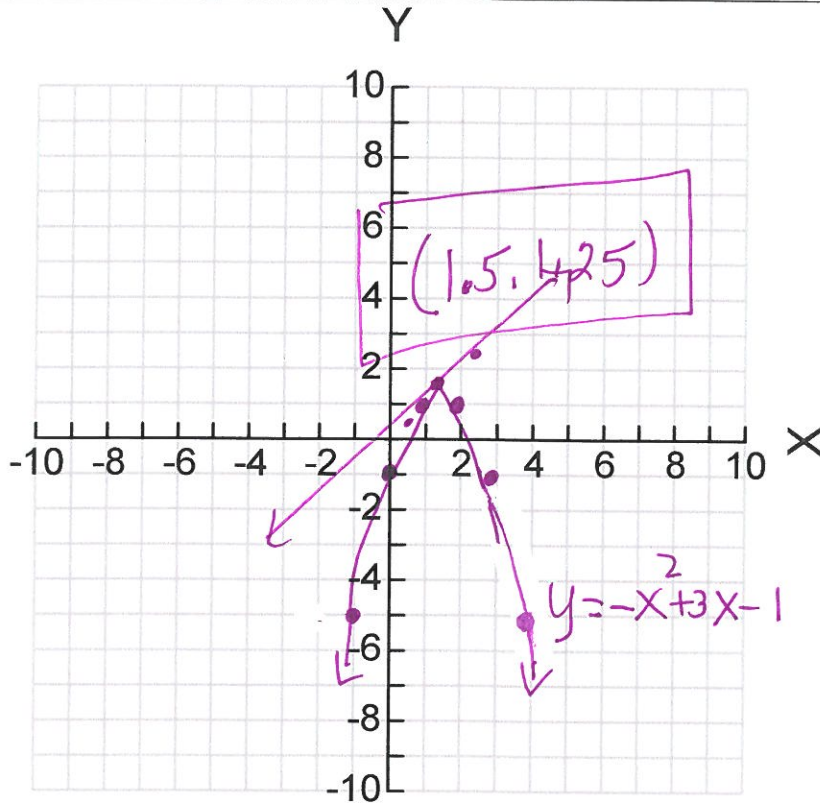
min 7

Q_1 17.5 Q_3 42.5

med 38 max 60

Part IV

37.



$$y = -x^2 + 3x - 1$$

$\checkmark (1.5, 1.25)$

$$2y - 1 = x$$

$$2y = x + 1$$

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