

1.) 2	2.) 1	3.) 3	4.) 2
5.) 4	6.) 3	7.) 3	8.) 4
9.) 2	10.)3	11.)2	12.)1
13.)3	14.)4	15.)3	16.)1
17.)4	18.)1	19.)3	20.)2
21.)4	22.)2	23.)3	24.)2

Part II – Show all work!

25.  $a(n) = (n+3)^{n-1}$

$a(5) = (5+3)^{5-1}$

$a(5) = 8^4 = \boxed{4096}$

26.  $6x \cdot \frac{3}{6x} + \frac{6x \cdot 1}{2} = \frac{6x \cdot 8}{x} + \frac{4 \cdot 6x}{3}$

$3 + 3x = 48 + 8x$

$3 = 48 + 5x$

$-45 = 5x$

$\boxed{-9 = x}$

27.  $(x^2+4)(2x^2+x-1)$

	$2x^2$	$x$	$-1$
$x^2$	$2x^4$	$x^3$	$-x^2$
$4$	$8x^2$	$4x$	$-1$

$\boxed{2x^4 + x^3 + 7x^2 + 4x - 1}$

28.  $y = x^2 - 16$

$x = 0$

$y = (0)^2 - 16$

$y = -16$

$\boxed{(0, -16)}$

29.

$P(x) = 22x - 45$

30. Don't do.

31.

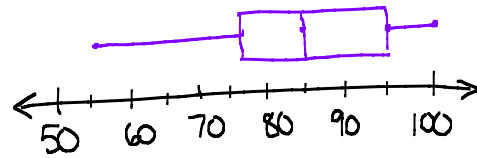
$$x^2 - 8x - 20 = 0$$

$$(x - 10)(x + 2) = 0$$

$$\boxed{\{10, -2\}}$$

32. a)

$$\begin{array}{ll} \text{min} = 56 & Q_3 = 93 \\ Q_1 = 76 & \text{max} = 100 \\ \text{med} = 85 & \end{array}$$



b) 76

## Part III – Show all work!

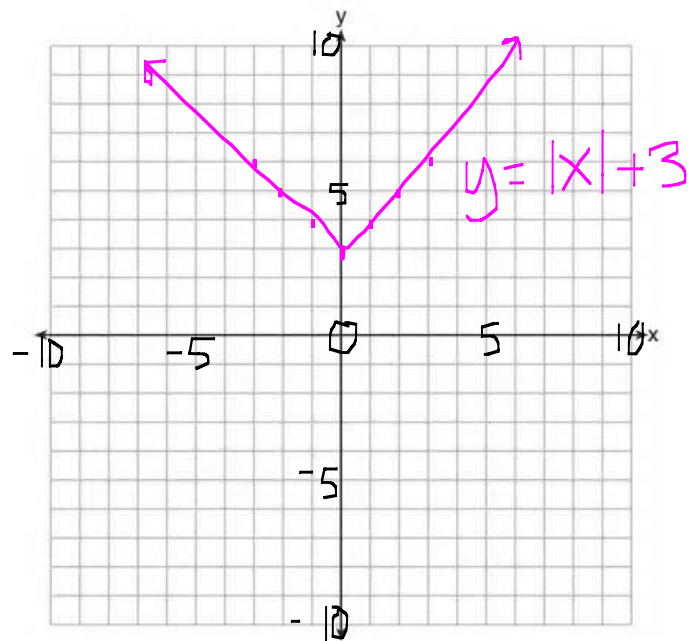
33. a)

$$y = 9.48x + 31.52$$

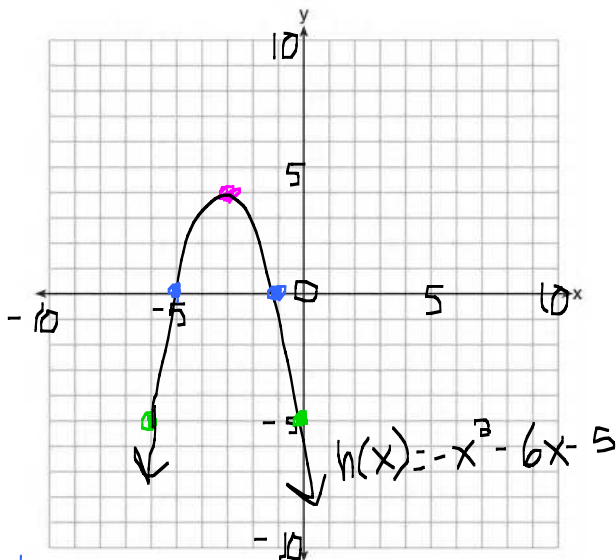
$$\begin{aligned} \text{b) } y &= 9.48(25) + 31.52 \\ y &= 237 + 31.52 \end{aligned}$$

$$\boxed{y = \$268.52}$$

34.



35.



roots:

$$0 = -x^2 - 6x - 5$$

$$0 = -(x^2 + 6x + 5)$$

$$0 = -(x+5)(x+1)$$

$$\{-5, -1\}$$

vertex:

$$h(x) = -(x^2 + 6x + 9) - 5 + 9$$

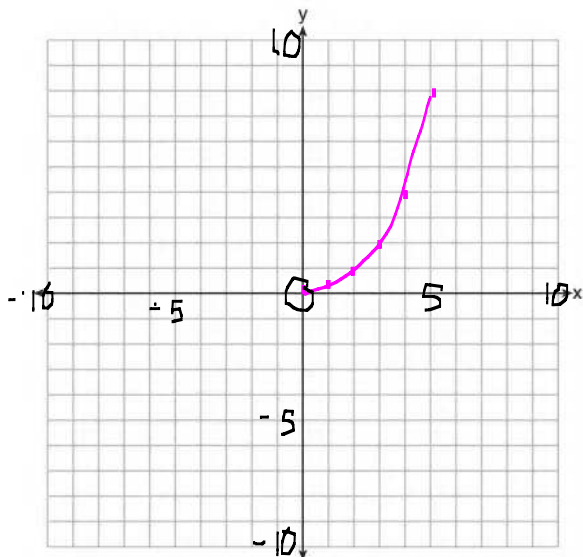
$$h(x) = -(x+3)^2 + 4$$

$$h(x) = -(x+3)^2 + 4$$

vertex:  
(-3, 4)

y-int:  $h(0) = -5$

37.



x	f(x)
0	1/4
1	1/2
2	1
3	2
4	4
5	8

36. a)

$$C(d) = 1600 + 0.1d$$

b)  $C(4000) = 1600 + 0.1(4000)$

$$C = 1600 + 400 = \boxed{\$2000}$$

c)  $0.6(4000) = \$2400$

$$2400 - 2000 = \boxed{\$400 \text{ profit}}$$

Find the average rate of change between  $f(2)$  and  $f(5)$ .

$$\frac{f(5) - f(2)}{5 - 2}$$

$$5 - 2$$

$$\frac{8 - 1}{5 - 2} = \boxed{\frac{7}{3}}$$