

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

$3 + 3x = 48 + 8x$

$3 = 48 + 5x$

$-45 = 5x$

$\boxed{-9 = x}$

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

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

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

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.

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

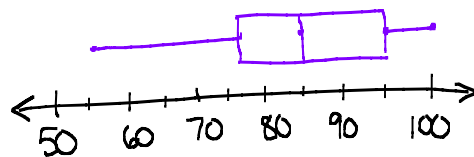
$$(x - 10)(x + 2) = 0$$

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

- ① Factor the expression on the left side of the equation.
- ② Since 2 expressions multiply together to get zero, set each factor equal to zero.
- ③ solve each linear expression.

32. a)

$$\begin{array}{ll} \text{min} = 56 & Q_3 = 99 \\ Q_1 = 76 & \text{max} = 100 \\ \text{med} = 85 & \end{array}$$



b) 76

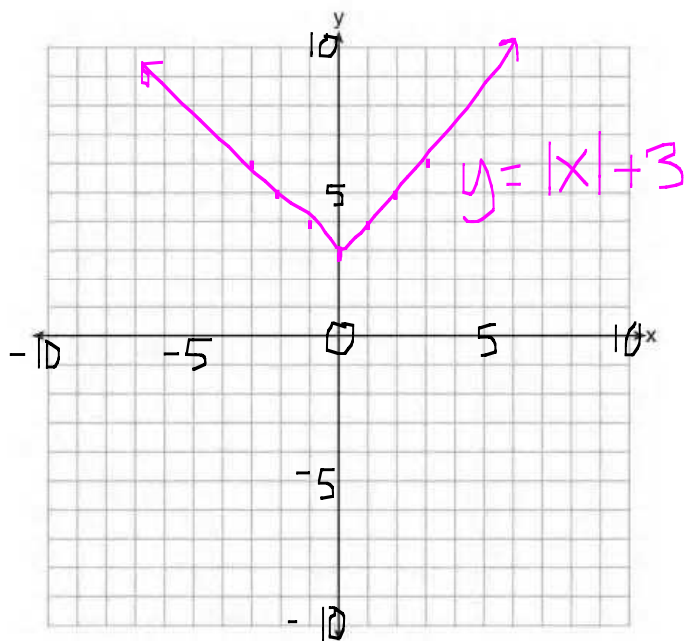
Part III – Show all work!

33. a)

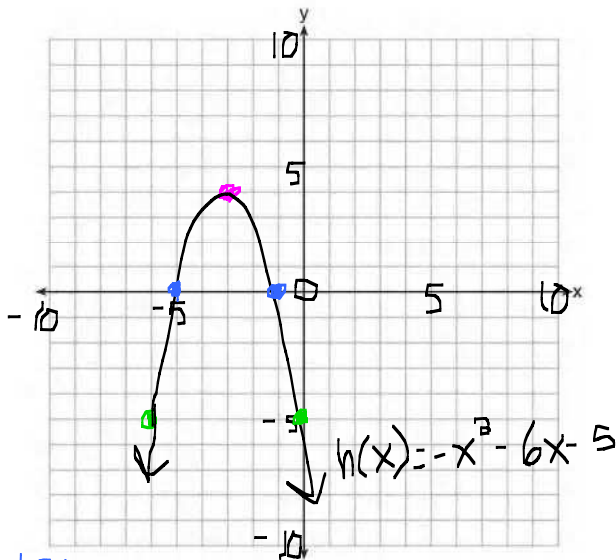
$$y = 9.48x + 31.52$$

$$\begin{aligned} \text{b) } y &= 9.48(25) + 31.52 \\ y &= 237 + 31.52 \\ \boxed{y} &= \boxed{\$268.52} \end{aligned}$$

34.



35.



roots:

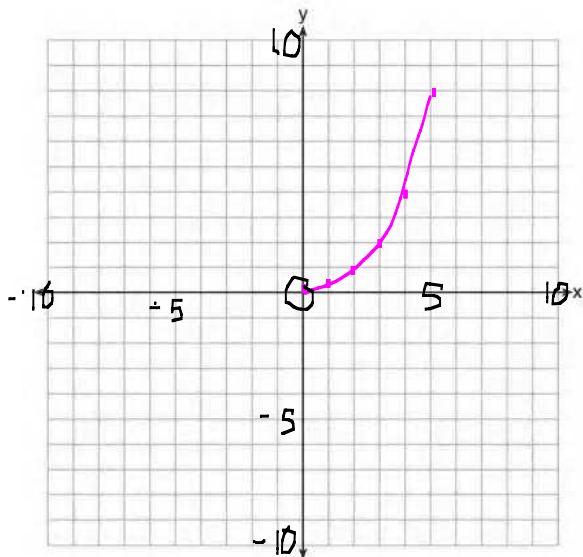
$$\begin{aligned} 0 &= -x^2 - 6x - 5 \\ 0 &= -(x^2 + 6x + 5) \\ 0 &= -(x+5)(x+1) \\ &\{-5, -1\} \end{aligned}$$

vertex:

$$\begin{aligned} h(x) &= -1(x^2 + 6x + 9) - 5 + 9 \\ h(x) &= -(x+3)^2 + 4 \\ h(x) &= -(x+3)^2 + 4 \\ \text{Vertex:} & \quad (-3, 4) \end{aligned}$$

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 $f(5)$.

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

$$5 - 2$$

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