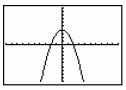
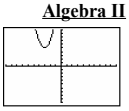
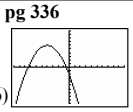
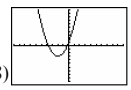
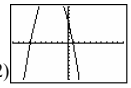
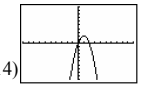
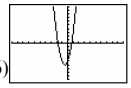
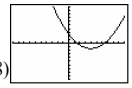
Algebra II - pg 336

2)  4)  6)  8) 

12)  14)  16)  18) 

20) min: -10
vertex (-4,-10)

22) min: $-\frac{49}{12}$
vertex $\left(\frac{5}{6}, -\frac{49}{12}\right)$

24) min: -16
vertex $\left(\frac{1}{2}, -16\right)$

26) a) (1,3) b) $\mathbb{R}$
c) $(-\infty,3]$ d) {0,2}

28) a) (-4,25) b) $\mathbb{R}$
c) $(-\infty,25]$ d) {-9,1}

30) a) (-2,-3) b) $\mathbb{R}$
c) $[-3,\infty)$ d) $\left\{\frac{-4\pm\sqrt{6}}{2}\right\}$

32) a) $(1,-\frac{1}{2})$ b) $\mathbb{R}$
c) $[-\frac{1}{2},\infty)$ d) {-4,6}

34) a) (5,-8) b) $\mathbb{R}$
c) $[-8,\infty)$ d) {3,7}

36) a) $(1,-\frac{1}{2})$ b) $\mathbb{R}$
c) $[-\frac{1}{2},\infty)$ d) $\{\frac{2}{3}, \frac{4}{3}\}$

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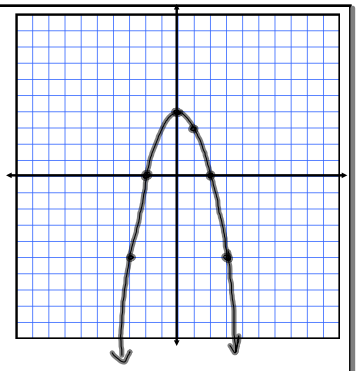
2) $F(x) = 4-x^2$
$= -x^2+4$
$= -(x+0)^2+4$
vertex (0,4)

x-ints: (1, 3) (2,0) (3,-5)
$0 = 4-x^2$
$\sqrt{x^2} = \sqrt{4}$
$x = \pm 2$



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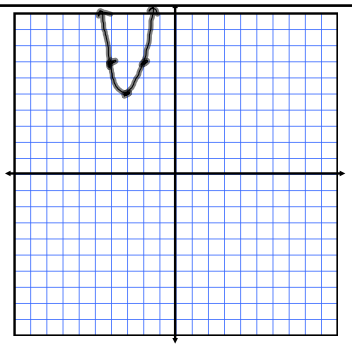
4) $F(x) = 2(x+3)^2+5$
vertex (-3,5)
(-2,7)



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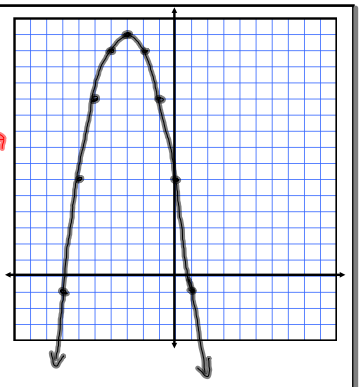
12) $h(x) = 6-6x-x^2$
$h(x) = -x^2-6x+6$
$h(x) = (-x^2-6x\ )+6$
$h(x) = -(x^2+6x+9\ )+6+9$
$6, \frac{1}{2}(6) = 3, 3^2 = 9$
$h(x) = -(x+3)^2+15$
vertex (-3,15)
(-2,14) (0,6)
(-1, 11) (1, -1)



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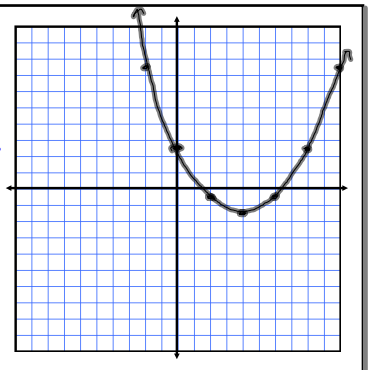
18) $F(x) = \frac{1}{4}x^2-2x+\frac{5}{2}$
y int: $(0,\frac{5}{2})$
$F(x) = (\frac{1}{4}x^2-2x\ )+\frac{5}{2}$
$= \frac{1}{4}(x^2-8x+16)+\frac{5}{2}-4$
$-8, -4, 16$
$= \frac{1}{4}(x-4)^2-\frac{3}{2}$
vertex $(4,-\frac{3}{2})$
$(6,-\frac{1}{2})$ $(10,7\frac{1}{2})$
axis: $x=4$



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22) $F(x) = 3x^2-5x-2$
$F(x) = (3x^2-5x\ )-2$
$F(x) = 3(x^2-\frac{5}{3}x+\frac{25}{36})-2-\frac{35}{12}$
$-\frac{24}{12}$
$-\frac{5}{3}, \frac{1}{2}(-\frac{5}{3}) = -\frac{5}{6}, \frac{25}{36}$
$F(x) = 3(x-\frac{5}{6})^2-\frac{49}{12}$
positive ↑
negative ↓

vertex $(\frac{5}{6}, \frac{-49}{12})$
value of max or min
min of $\frac{-49}{12}$

22) $f(x) = 3x^2 - 5x - 2$

$f(x) = (3x^2 - 5x\ \ ) - 2$ $\quad -\frac{24}{12}$

$f(x) = 3(x^2 - \frac{5}{3}x + \frac{25}{36}) - 2 - \frac{25}{12}$ $\quad$ value of max or min

$-\frac{5}{3},\ \frac{1}{2}(-\frac{5}{3}) = -\frac{5}{6},\ \frac{25}{36}$

$f(x) = 3(x - \frac{5}{6})^2 - \frac{49}{12}$

vertex $(\frac{5}{6}, -\frac{49}{12})$

min of $-\frac{49}{12}$

positive ↑

negative ↓

32) $g(x) = \frac{1}{2}(x+6)(x+4)$

$k = \frac{1}{2}(-5+6)(-5+4)$

$k = \frac{1}{2}(1)(-1)$

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

$a = \frac{1}{2}$, Fat + open up

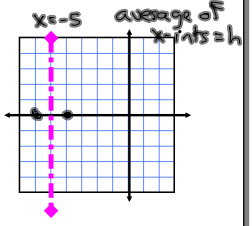
Minimum

vertex: $(-5, -\frac{1}{2})$

domain: $\mathbb{R}$

range: $[-\frac{1}{2}, \infty)$

zeros: $\{-6, -4\}$ already Factored



34) $f(x) = 2(x-5)^2 - 8$

skinny, up, min

$0 = 2(x-5)^2 - 8$

$\frac{8}{2} = \frac{2(x-5)^2}{2}$

$\sqrt{4} = \sqrt{(x-5)^2}$

$2 = |x-5|$

$\pm 2 = x - 5$

$5 \pm 2 = x$

$7, 3 = x$

vertex: $(5, -8)$

domain: $\mathbb{R}$

range: $[-8, \infty)$

zeros: $\{7, 3\}$