

Math 121

HW #2

2.1: 27, 37 ~~37~~

2.2: 12, 14, 32

2.1 #27  $f(x) = (x-3)^{1/2} = \sqrt{x-3}$

need  $x-3 \geq 0$ , i.e.  $x \geq 3$

so domain is all  $x \geq 3$ , or  $[3, \infty)$ .

2.1 #37 ~~37~~

domain =  $[-5, 4)$

range =  $[-2, 6]$

2.2 #12

$$y = -3x^2 - 6x + 4$$

vertex:  $x = \frac{-b}{2a} = \frac{-6}{-6} = -1$

$$y = -3(-1)^2 + 6(-1) + 4 = -7$$

y-int:  $y = 4$

x-int:  $-3x^2 - 6x + 4 = 0$

$$3x^2 + 6x - 4 = 0$$

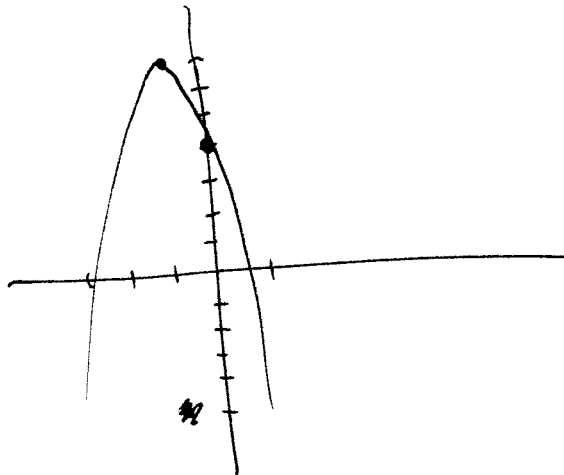
~~$(3x)(x)$~~  can't factor

quad. form:

$$x = \frac{6 \pm \sqrt{36 - 4 \cdot 3 \cdot (-4)}}{-6}$$

$$= \frac{6 \pm \sqrt{84}}{-6}$$

$$= -2.52, .52$$



2.2 #14

$$y = -x^2 + 6x - 6$$

vertex:  $x = \frac{-b}{2a} = 3$

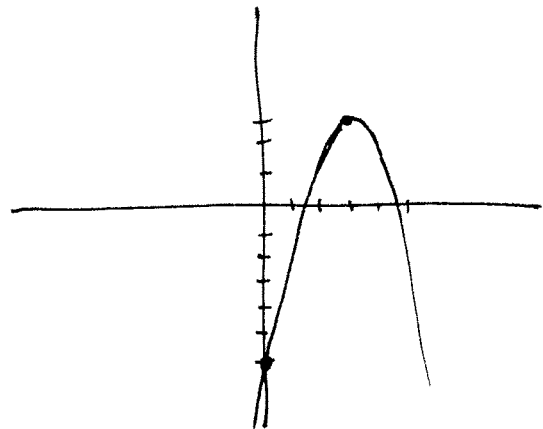
$$y = -3^2 + 6 \cdot 3 - 6 \\ = -9 + 18 - 6 = 3$$

y-int:  $y = -6$

x-int:  $-x^2 + 6x - 6 = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-6 \pm \sqrt{36 - 4 \cdot (-1) \cdot (-6)}}{-2} \\ = \frac{-6 \pm \sqrt{12}}{-2} = 3 \pm \sqrt{3} = 4.73, 1.27$$



2.2 #32

Graph  $\sqrt{x+2} - 3$ .

It's  $\sqrt{x}$ , shift left by 2,  
shift down 3.

