

Write in general form

$$(x-2)(x-2)$$

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

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

$$= 4x^2 - 16x + 16 + 3$$

$$y = 4x^2 - 16x + 19$$

Write in standard form

$$y = x^2 - 12x + 30$$

$$y = (x^2 - 12x) + 30$$

$$36 + y = (x^2 - 12x + 36) + 30$$

$$y = (x-6)^2 + 30 - 36$$

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

$$(x-6)(x-6)$$

$$x^2 - 6x - 6x + 36$$

opens up  
-6 is a minimum value

$$y = x^2 + 9x - 5$$

$$y = (x^2 + 9x) - 5$$

$$20.25 + y = (x^2 + 9x + 20.25) - 5$$

$$y = (x + 4.5)^2 - 5 - 20.25$$

$$y = (x + 4.5)^2 - 25.25$$

Min value of  
~ 25.25

$$y = 2x^2 - 20x + 212$$

$$y = 2(x^2 - 10x) + 212$$

$$(2 \cdot 25) + y = 2(\underline{x^2 - 10x + 25}) + 212$$

$$y = 2(x-5)^2 + 212 - 50$$

$$y = 2(x-5)^2 + 162$$

$$y = -3x^2 + 18x - 30$$

$$y = -3(x-3)^2 - 3$$

$$y = a(x-3)^2 - 3$$

Max value of -3

$a < 0$

p.131

36-50 evens

54, 59, 63

$$7 \div \left(-\frac{1}{2}\right) = -14$$

$$y = -\frac{1}{2}x^2 + 7x + 10$$

$$= -\frac{1}{2}(x^2 - 14x) + 10$$

$$y = -0.002x^2 - 0.1x$$

$$= -0.002(x^2 + 50x)$$

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

$$= 2(x^2 + 3x)$$