

Mountain Climber



9) p.178 #66b,e.

(b)  $y = 0.68x + 9.013$  (e)  $y = 0.68(30) + 9.013$   
 $y \rightarrow$  weight  $y = 29.413$   
 $x \rightarrow$  age  $y = 29.413$   
29.413 lbs

8) p.178 #65b.

$y \rightarrow$  vertical distance  $y = 6\%x$   $250 = 0.06x$   
 $x \rightarrow$  horizontal distance  $y = 0.06x$   $4166.67 = x$   
4166.667 ft

7) p.177 #51.

$f(x) = 2350 - 470x$  depreciated =  $\frac{2350}{5} = 470$   
per year  
 $f(3) = 2350 - 470(3)$   
 $= 940$   
The value of computer 3 years later is \$940

6) Write an equation for the quadratic function whose graph contains a vertex of  $(-2, -5)$  and a point  $(-4, 27)$ .

$f(x) = a(x-h)^2 + k$   $h \uparrow$   $k \uparrow$   
 $27 = a(-4 - (-2))^2 + (-5)$   
 $27 = a(-2)^2 - 5$   
 $27 = 4a - 5$   
 $32 = 4a \rightarrow a = 8$   
 $f(x) = 8(x+2)^2 - 5$

5) Find the vertex & axis of symmetry if  $h(x) = 3x^2 + 5x - 4$ . Place in vertex form.

$x = \frac{-b}{2a}$  axis of symmetry:  $x = -\frac{5}{6}$   
 $x = \frac{-5}{2(3)}$   
 $x = -\frac{5}{6}$   
 $h(-\frac{5}{6}) = 3(-\frac{5}{6})^2 + 5(-\frac{5}{6}) - 4$   
 $= -\frac{73}{12}$   
vertex:  $(-\frac{5}{6}, -\frac{73}{12})$   
 $h(x) = 3(x + \frac{5}{6})^2 - \frac{73}{12}$

4) Find the vertex and axis of symmetry if  $g(x) = -3(x+2)^2 - 1$

Vertex:  $(-2, -1)$   
axis of symmetry:  $x = -2$   
 $h = -2$   $k = -1$

3) Find the equation of the linear function if  $f(1) = 2$  &  $f(5) = 7$ .

$m = \frac{7-2}{5-1} = \frac{5}{4}$  pt.  $(1, 2)$  pt.  $(5, 7)$   
 $y - y_1 = m(x - x_1)$   
 $y - 2 = \frac{5}{4}(x - 1)$   
 $f(x) = \frac{5}{4}(x-1) + 2$

2) Find y if the slope of a line is  $-\frac{2}{3}$  through the points  $(5, -1)$  &  $(2, y)$ .

$m = \frac{y_2 - y_1}{x_2 - x_1}$   
 $-\frac{2}{3} = \frac{y - (-1)}{2 - 5}$   
 $-\frac{2}{3} = \frac{y+1}{-3}$   
 $-3(-\frac{2}{3}) = (y+1)(-3)$   
 $2 = y+1$   
1 = y

1) State the degree and leading coefficient of  $k(x) = 4x - 5x^2$

degree: 2  
Leading coefficient: -5  
 $k(x) = -5x^2 + 4x$   
Leading coefficient  $\uparrow$  degree  $\uparrow$

