Review of quadratic and absolute value function

1. Change the following to the a,h,k standard form and find the vertex:

a) $f(x) = -2(3x-12)^2 + 1$ b) $f(x) = -3|4 - 2x|$ c) $f(x) = (6 - 2x)^2$

2. For the following, determine:

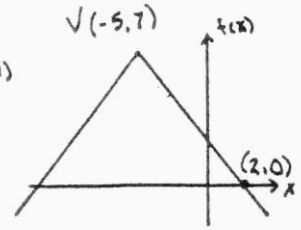
a) the y-intercept

b) f(-3)

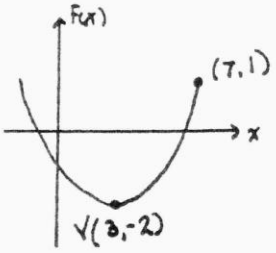
c) f(x) = 4

d) f(x) < 1

i)



ii)



3. Given f(x) = -| 2 - x | + 5, sketch using the zeros, y-int, and vertex.

4. A cannon is fired from the balcony of a tower. The path of the cannon ball is described by the function: $f(x) = -0.005(x-80)^2 + 40$ where f(x) is the height of the cannon ball in metres and x is the time in seconds since the firing.

a) How high is the balcony?

b) For how long was the cannon ball above 25 metres?

5. A company sells magazine subscriptions. The profit in dollars is given by P(x) = -|100 - 2x | + 70 where x is the number of subscriptions sold.

a) How many subscriptions must be sold in order to make a profit?

b) what is the profit if 40 subscriptions are sold?

c) what number of subscriptions must be sold to generate at least $50 in profit?

6. Sophie makes fridge magnets. She sells them for spending money. She predicts that the profit,P(n), made in the sale of n magnets is given by the rule P(n) = -|2n - 160| + 50.

a) Skecth the graph if she can make a maximum of 200 magnets.

b) what will the profit be if she sells 100 magnets?

c) How many magnets must she sell to earn at $40?

d) How much money would she make if she sold 60 magnets?

7.

Rule	Vertex	Equation of the axis of symmetry		Zero(s)
$f(x) = -\|x-4\| + 3$				
$g(x) = \|2x+1\| - 3$				
$h(x) = 3\|x-5\| + 2$				
$j(x) = -4\|2x-3\|$				