1. Write the equation of each quadratic in Vertex Form.
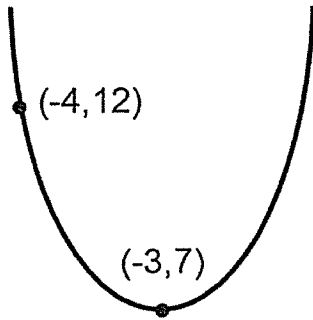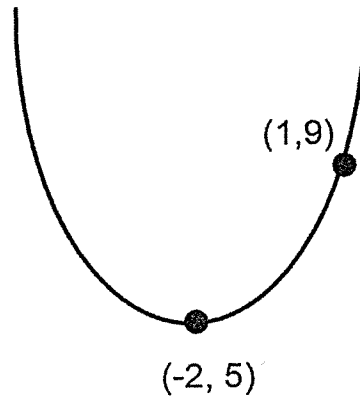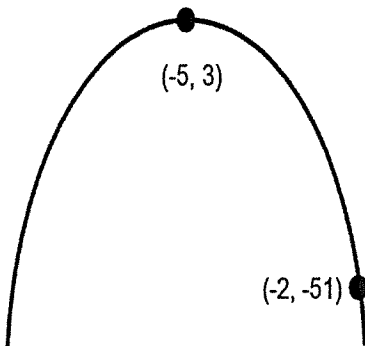
a.   b.

(-4,12)

(-3,7)

(1,9)

(-2, 5)

2. Write the equation of this quadratic in Standard Form.

(-5, 3)

(-2, -51)

2. A company wants to minimize the amount of wasted material when it manufactures their product. To do this they plan on operating more machines. The following equation models the amount of wasted material in pounds as a function of the number of machines being operated: $W(m) = -0.4m^2 + 7.2m + 13.7$
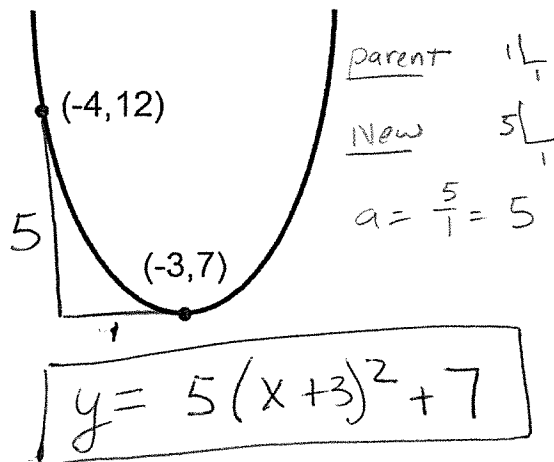
a) What is the minimum amount of waste the company can produce?

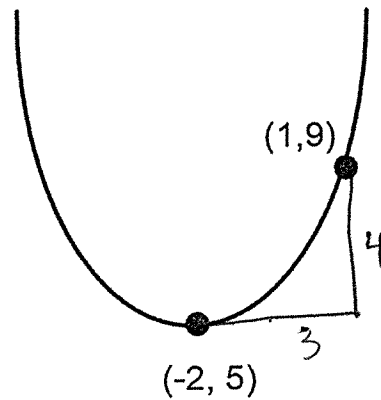b) How many machines will minimize this waste?

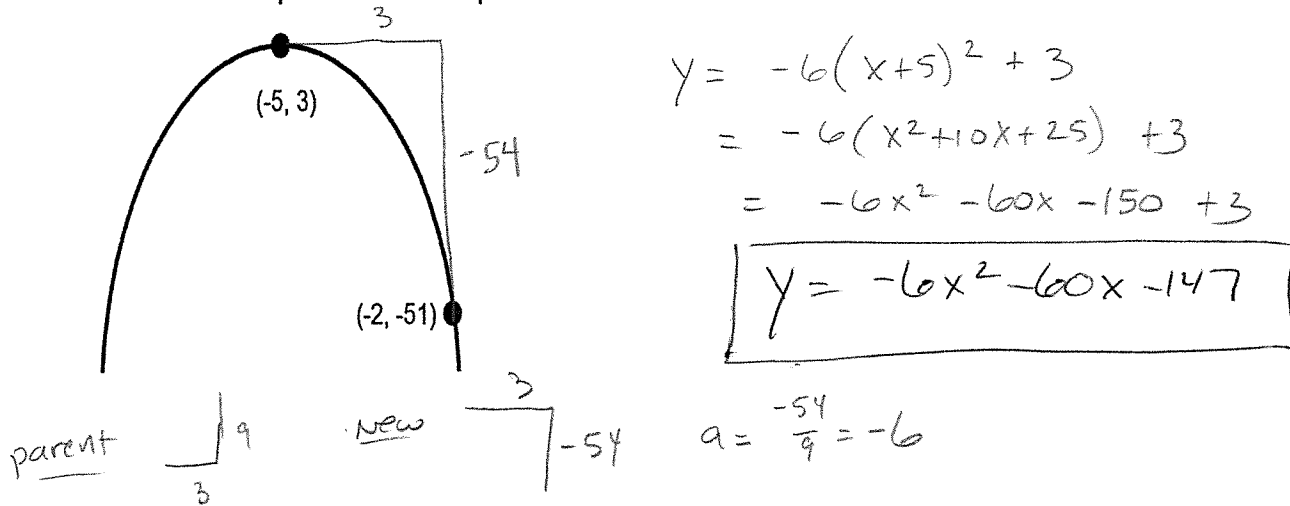**1. Write the equation of each quadratic in Vertex Form.**

a.

(-4,12)

5

(-3,7)

parent $\frac{1}{1}$

New $\frac{5}{1}$

$a = \frac{5}{1} = 5$

$$y = 5(x+3)^2 + 7$$

b.

(1,9)

4

(-2, 5)

3

. parent $\frac{1}{3}$

New $\frac{4}{3}$

$a = \frac{image}{orig} =$

$$y = \frac{4}{9}(x+2)^2 +$$

2. Write the equation of this quadratic in Standard Form.

3

(-5, 3)

-54

(-2, -51)

parent $\frac{1}{3}$ 9 New $\frac{3}{}$ -54 $a = \frac{-54}{9} = -6$

$y = -6(x+5)^2 + 3$

$= -6(x^2 + 10x + 25) + 3$

$= -6x^2 - 60x - 150 + 3$

$$y = -6x^2 - 60x - 147$$

2. A company wants to minimize the amount of wasted material when it manufactures their product. To do this they plan on operating more machines. The following equation models the amount of wasted material in pounds as a function of the number of machines being operated: $W(m) = -0.4m^2 + 7.2m + 13.7$

Vertex

LoS $m = \frac{-7.2}{2(-.4)} = 9$

Vertex $(9, 46.1) \longrightarrow (m, w)$

a) What is the minimum amount of waste the company can produce?

46.1 lbs

b) How many machines will minimize this waste?

9 machines

1