3. Write the equation of this parabola:

(5,-3) (h,k)

y= -4 (x-5)² - 3

(8,-39)
x y
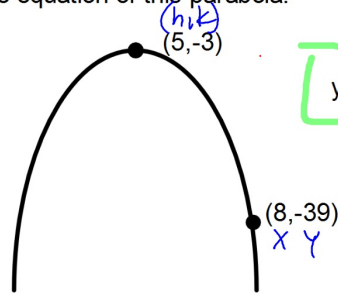
$y=a(x-h)^2+k$

$y=a(x-5)^2-3$

$-39=a(8-5)^2-3$

$-39=9a-3$
$+3 \qquad +3$

$-36=9a$

$-4=a$

G varies jointly with W and the cube of M and inversely with the square of A.

G=11.88 when W=4, M=3 and A=5.

Find W when G=20, M=2, and A=8.

$G=\dfrac{k\,W\,M^3}{A^2}$

$11.88=\dfrac{k\,4\,(27)}{25}$

$k=2.75$

$20=\dfrac{2.75\,W\,8}{64}$

58.18

$y = 4x^2 + 12x - 15$

Find the following:

$\dfrac{-b}{2a} = \dfrac{-12}{8}$

a) Equation for the Line of Symmetry $x = -1.5$

b) The coordinates of the Vertex $(-1.5, -24)$

c) The y-intercept -15

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8. $y = -4(x - 13)^2 + 18$

Find the following:

a) Equation for the Line of Symmetry $x = 13$

b) The coordinates of the Vertex $(13, 18)$

c) The y-intercept -658

Does each table represent Direct Variation, Inverse Variation, or Neither. If it shows a variation relationship write an equation and find Y when X = 81

a)

Direct Variation

X	Y	$\frac{Y}{X}$
4	30.4	7.6
7	53.2	7.6
10	76	7.6
13	98.8	7.6

D. V.
$Y = 7.6X$
$7.6(81)$

$\boxed{y = 615.6}$

or
$\frac{7.6}{10} = \frac{Y}{81}$

b)

X	Y	XY
5	29.6	148
8	18.5	148
16	9.25	148
20	7.4	148

Inverse Variation

$XY = 148$
$y = \frac{148}{81}$
$\boxed{y = 1.83}$

9. State the solution to each compound inequality. State answer as a single inequality if possible.

a) $K < 4$ OR $K < 1$

$\boxed{K < 4}$

b) $A \geq 7$ AND $A \leq 12$

$\boxed{7 \leq A \leq 12}$