

I: Match each of the following quadratic functions with their graph

1. $y = -(x - 3)^2 - 4$

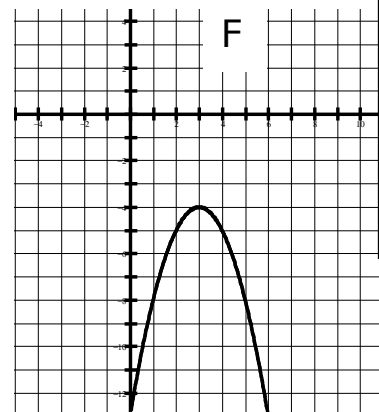
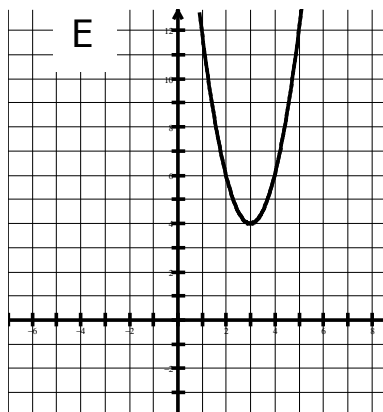
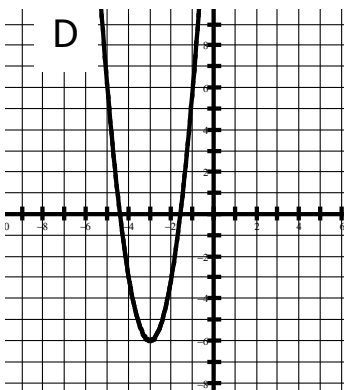
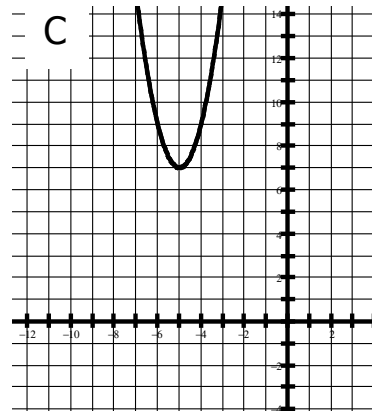
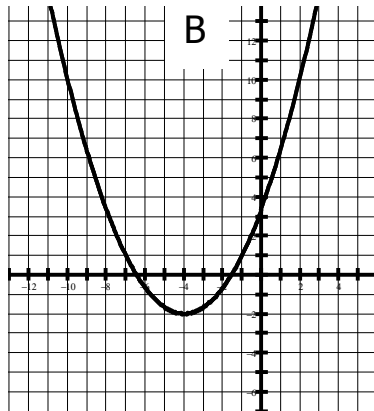
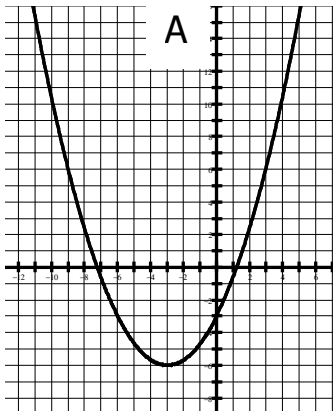
2. $\frac{1}{2}(y - 4) = (x - 3)^2$

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

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

5. $y = \frac{1}{3}(x + 3)^2 - 6$

6. $y = 3x^2 + 18x + 21$



1. F 2. E 3. C 4. B 5. A 6. D

II: For each of the following determine the roots of the equations using the quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1. $2x^2 - 7x + 5 = 0$

4. $x^2 - 6x + 4 = 0$

2. $2x^2 + x - 6 = 0$

5. $x^2 + 4x - 2 = 0$

3. $3x^2 - 2x - 5 = 0$

6. $3x^2 + 10x + 5 = 0$

1. $x = 2.5, \text{ or } 1$	2. $x = 0.8, \text{ or } 5.2$	3. $x = -2.1 \text{ or } .2$	4. $x = -4.4 \text{ or } 0.4$	5. $x = 1.7 \text{ or } -2$	6. $x = -0.6 \text{ or } -2.7$
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III: Calculate the discriminant and state the nature of the roots.

$36x^2 - 12x + 1 = 0$

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

$x^2 + 3x - 7 = 0$

$d = b^2 - 4ac$
 $d = (-12)^2 - 4(36)(1)$
 $d = 144 - 144$
 $d = 0$

$d = b^2 - 4ac$
 $d = (2)^2 - 4(9)(5)$
 $d = 4 - 180$
 $d = -176$

$d = b^2 - 4ac$
 $d = (3)^2 - 4(1)(-7)$
 $d = 9 + 28$
 $d = 37$

$d = 0 \therefore$ one real root

$d < 0 \therefore$ non real roots

$d > 0 \therefore$ two real roots

IV: Evaluate the following

$f(x) = 14 \pm \sqrt{-841}$ $14 + 29i; 14 - 29i$

$f(x) = \frac{12 \pm \sqrt{-3969}}{-3}$ $-75i ; 17i$

V: Solve the following quadratic word problems

A rabbit enclosure confines the rabbits to an area of 8736 m². The width is 20 m less than the length. What are the dimensions of the enclosure. 84 m by 104 m

The sum of the squares of 3 consecutive, positive numbers is 869. Find the numbers. 16, 17, 18