

Math II

Name _____ ID: 1

Discriminant Practice $D = \sqrt{B^2 - 4AC}$

Date _____ Period _____

Use the discriminant to determine the number of real solutions to each equation.

$$1) \overset{A}{-4}x^2 + \overset{B}{5}x - \overset{C}{3} = 0$$

$$(5)^2 - 4(-4)(-3)$$

$$25 - 48$$

-23 No Real Solutions

$$2) \overset{A}{3}k^2 + \overset{B}{6}k + \overset{C}{3} = 0$$

$$(6)^2 - 4(3)(3)$$

$$36 - 36$$

0 One Solution

$$3) \overset{A}{-4}x^2 - \overset{B}{x} + \overset{C}{5} = 0$$

$$(-1)^2 - 4(-4)(5)$$

$$1 + 80$$

81 Two Solutions

$$4) \overset{A}{-4}m^2 + \overset{B}{4}m - \overset{C}{5} = 0$$

$$(4)^2 - 4(-4)(-5)$$

$$16 - 80$$

-64 No Solutions

$$5) \overset{A}{3}m^2 - \overset{B}{6}m + \overset{C}{3} = 0$$

$$(-6)^2 - 4(3)(3)$$

$$36 - 36$$

0 One Solution

$$6) \overset{A}{-2}a^2 - \overset{B}{6}a + \overset{C}{3} = 0$$

$$(-6)^2 - 4(-2)(3)$$

$$36 + 24$$

60 Two Solutions

Created with Doceri



REASONING Give a value of c for which the equation has (a) two solutions, (b) one solution, and (c) no solution.

$$\begin{array}{ccc} A & B & C \\ x^2 - 2x + c = 0 \\ (-2)^2 - 4(1)(c) \\ 4 - 4(c) \end{array}$$

A) $c = \text{Any } \# \leq 0$

B) $c = 1$

C) $c = \text{Any positive number}$

$$\begin{array}{ccc} A & B & C \\ x^2 - 8x + c = 0 \\ (-8)^2 - 4(1)(c) \\ 64 - 4(c) \end{array}$$

A) $c = \text{Any } \# < 16$

B) $c = 16$

C) $c = \text{Any } \# > 16$

$$\begin{array}{ccc} A & B & C \\ 4x^2 + 12x + c = 0 \\ (12)^2 - 4(4)(c) \\ 144 - 16(c) \end{array}$$

A) $\text{Any } \# < 9$

B) $c = 9$

C) $\text{Any } \# > 9$

Created with Doceri



USING THE DISCRIMINANT Tell whether the vertex of the graph of the function lies above, below, or on the x-axis. Explain your reasoning.

$$y = x^2 - 3x + 2$$

$(-3)^2 - 4(1)(2)$
 1 Below X-axis

$$y = 3x^2 - 6x + 3$$

$(-6)^2 - 4(3)(3)$
 0 On X-axis

$$y = 6x^2 - 2x + 4$$

$(-2)^2 - 4(6)(4)$
 -92 Above X-axis

$$y = -15x^2 + 10x - 25$$

$(10)^2 - 4(-15)(-25)$
 -1400 Below X-axis

$$y = -3x^2 - 4x + 8$$

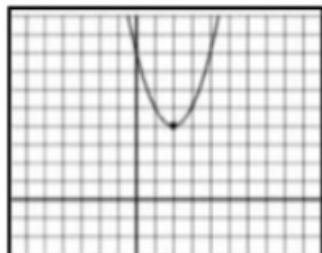
$(-4)^2 - 4(-3)(8)$
 112 Above X-axis

$$y = 9x^2 - 24x + 16$$

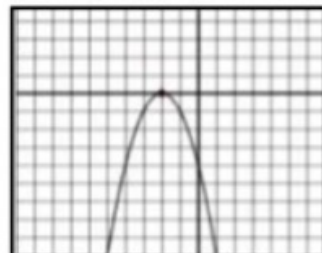
$(-24)^2 - 4(9)(16)$
 0 On X-axis

Created with Doceri 

Given the graph below determine a) the sign of the discriminant b) the number of roots.



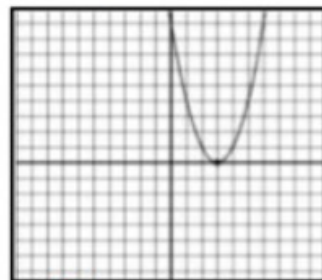
a) negative
b) zero



a) 0
b) one



a) positive
b) two



a) 0
b) one



a) negative
b) zero



a) positive
b) two

Created with Doceri

