

**Question 1:**

If the value of the discriminant of a particular quadratic equation is 45, describe the nature of the solution(s).

A. Two real, rational solutions

Incorrect.  $\sqrt{45}$  is irrational

B. One (double) real solution

Incorrect. The discriminant would have to be zero.

C. Two real, irrational solutions

Correct.  $\sqrt{45}$  is irrational, and therefore the solutions are irrational

D. Two complex (imaginary) solutions

Incorrect.  $\sqrt{45}$  is real, not imaginary.

**Question 2**

If the value of the discriminant of a particular quadratic equation is -64, describe the nature of the solution(s).

A. Two real, rational solutions

Incorrect.  $\sqrt{-64}$  is not real.

B. One (double) real solution

Incorrect. The discriminant isn't zero.

C. Two real, irrational solutions.

Incorrect.  $\sqrt{-64}$  is not real

D. Two complex (imaginary) solutions

Correct!  $\sqrt{-64}$  is imaginary.

**Question 3:**

Find the value of the discriminant for the following quadratic equation and describe the nature of the solution(s):  $2x^2 + 3x - 2 = 0$

A.  $D = -7$ ; two complex solutions

Incorrect.  $3^2 - 4(2)(-2) \neq -7$

B.  $D = 25$ ; two real, rational solutions

Correct.  $\sqrt{3^2 - 4(2)(-2)} = \sqrt{25} = 5$ , which is rational.

C.  $D = 7$ ; two real, irrational solutions

Incorrect.  $3^2 - 4(2)(-2) \neq 7$

D.  $D = 25$ ; one real, rational solution

Incorrect. Quadratic formula yields:  $\frac{-3 \pm 5}{4}$ , which yields two different solutions.

**Question 4:**

Which of the following possible discriminant values would yield two real, irrational solutions?

A. 64

Incorrect. Two real, rational solutions.  $\sqrt{64}$  is rational

B. 24

Correct!  $\sqrt{24}$  is irrational, therefore 2 irrational solutions.

C. -24

Incorrect.  $\sqrt{-24}$  is imaginary.

D. -64

Incorrect.  $\sqrt{-64}$  is imaginary.