

MATHEMATICS TEST ON QUADRATIC EQUATIONS. Version 1

1. Explain what a quadratic equation is.

Answer:

2. Solve the following equations.

Equation	x_1	x_2
$x^2 - 5x + 6 = 0$		
$\frac{1}{3}x^2 = 27$		
$\frac{2x}{x+2} = \frac{3x}{x-3}$		

3. What is the sum of the solutions of the equation $3x^2 - 9x + 2 = 0$?

Answer:

4. Determine whether the following solutions are opposite, reciprocal, antireciprocal, or none of these.

Equation	Type of Solution
$x^2 - 4x + 3 = 0$	
$2x^2 + x - 1 = 0$	
$4x^2 - 16 = 0$	
$5x^2 + 10x + 5 = 0$	

5. Solve the following second-degree system.

$$\begin{cases} x^2 + y^2 = 4xy \\ x + y = 2 \end{cases}$$

Answer:

6. Find two numbers knowing that their sum is 7 and the sum of their reciprocals is $\frac{14}{5}$.

Answer:

7. Determine for which values of k the equation $kx^2 - 4x + 2 = 0$ with $k \neq 0$, satisfies the following conditions:

(a) The solutions are real and their sum is 3. Answer:

(b) The solutions are real and their product is equal to 3. Answer: