

Name: _____

Date: _____

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[10] **A: Determine whether a given statement is true or false. If the statement is false, correct it so it is true.**

	All quadratic equations have at least one real solution.
	A discriminant equal to zero implies that the quadratic equation has exactly one real solution.
	An equation has to be in vertex form before a quadratic formula can be applied.
	There are always 2 distinct solutions when solving a quadratic equation by factoring.
	Roots, zeros, solutions and x-intercepts can all have the same meaning.
	The y-intercept can never be a solution to a quadratic equation.
	$-36x^2 + 121 = 0$ can be solved by factoring and by the quadratic formula.
	$x^2 - 15x + 56 = 0$ can be solved by factoring and by the square root principle.
	$3x^2 + 2x - 10 = 0$ has a discriminant equal to -116 .
	$\sqrt{-16} = \pm 4$

[5] **B: Fill in the blanks to make the statements true.**

1. A discriminant greater than 1 implies that the quadratic equation has exactly _____ solutions.
2. An equation in standard form can never have a equal to _____.
3. An equation $0 = x^2 - 4x - 4$ can be solved by _____ and by _____.
4. The discriminant is given by _____ provided that the equation is in _____.

[20] **C: Short answer - 2 marks each.**

1. Solve $49x^2 - 144 = 0$. Clearly indicate the final solutions.

2. Solve $3x^2 - 2x - 8 = 0$. Clearly indicate the final solutions.

3. Solve $3(x - 3)^2 = 48$. Clearly indicate the final solutions.

4. Find the exact solutions to $\frac{1}{2}(x + 8)^2 = 12$.

5. How many real solutions does $10x + 3x^2 + 7 = 0$ have? Support your answer.

6. Find the exact roots of $-2x^2 + 4x + 2 = 0$. Express your answer in the simplest form.

7. Solve $2x^2 - x = 3x^2 + 5$ and give exact solutions.

8. What are the coordinates of the x-intercepts of $y = x^2 + 5x - 24$?

9. How many times does the graph of $y = x^2 - 6x + 9$ intersect or touch the x-axis?

10. a) What do we know about the discriminant if an equation has irrational solutions?

b) What do we know about the discriminant if an equation has rational solutions?

