Seventeenth Set of Homework for Math 05

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Please note: You should fully justify your answers.

1 Using the quadratic formula

Solve each of the following equations using the quadratic formula.

1. $x^2 + 4x - 21 = 0$

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

3. $x^2 - 5 = 0$

4. $x^2 + 3x = 0$

5. $4x^2 - 3x + 7 = 0$

6. $12x^2 + 4x = 1$

7. $12x^2 + 13x - 4 = 0$

8. $5x^2 + 3x = 11$

9. $-2x^2 - 7x + 3 = 0$

10. $24x^2 - 5x + 5 = 3x + 20$

11. $8x^2 - 11x - 13 = 3x^2 - 15x - 8$

2 The meaning of discriminant

1. Find the real nuber b so that the following equation:

$$9x^2 + bx + 25 = 0$$

   has exactly one (double) real solution.

2. For which real numbers a the equation $ax^2 - 4x + 7 = 0$ has real solutions?

3. For which real numbers c the equation:

$$3x^2 - 5x + c = 0$$

   has no real solutions?

4. Find the real number a if the equation: $ax^2 - 12x + 2a + 1 = 0$ has a double solution.