

MIAMI DADE COLLEGE  
INTERAMERICAN CAMPUS  
MATHEMATICS DEPARTMENT  
MAT 1033  
STUDY GUIDE

QUADRATIC EQUATIONS

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the equation. Express radicals in simplest form.

1)  $5x^2 = 35$

A)  $\{-7, 7\}$

B)  $\{8\}$

C)  $\{-\sqrt{7}, \sqrt{7}\}$

D)  $\{17.5\}$

Solve the equation. Write radicals in simplified form, and write your answer in lowest terms.

2)  $2m^2 + 6m + 2 = 0$

A)  $\left\{\frac{-6 \pm \sqrt{5}}{2}\right\}$

B)  $\left\{\frac{-3 \pm \sqrt{5}}{4}\right\}$

C)  $\left\{\frac{-3 \pm \sqrt{13}}{2}\right\}$

D)  $\left\{\frac{-3 \pm \sqrt{5}}{2}\right\}$

Write the number as a multiple of  $i$ .

3)  $\sqrt{-288}$

A)  $-12\sqrt{2}$

B)  $12\sqrt{2}$

C)  $-12i\sqrt{2}$

D)  $12i\sqrt{2}$

Perform the indicated operation. Give the result in standard form.

4)  $(3 + 3i) - (-4 + i)$

A)  $-7 - 2i$

B)  $7 - 2i$

C)  $-1 + 4i$

D)  $7 + 2i$

Find the product.

5)  $(2 - 6i)(5 + 8i)$

A)  $-48i^2 - 14i + 10$

B)  $-38 - 46i$

C)  $58 + 14i$

D)  $58 - 14i$

Write the quotient in standard form.

6)  $\frac{9 + 2i}{2 - 8i}$

A)  $-\frac{17}{30} + \frac{19}{30}i$

B)  $\frac{1}{34} + \frac{19}{17}i$

C)  $1 + 2i$

D)  $-\frac{1}{60} + \frac{19}{30}i$

Solve the equation for complex solutions. Write your answer in standard form.

7)  $x^2 - 10x + 41 = 0$

A)  $\{9, 1\}$

B)  $\{5 \pm 4i\}$

C)  $\{10 \pm 8i\}$

D)  $\{-5 \pm 4i\}$

Solve the equation by completing the square.

8)  $8x^2 + 4x - 4 = 0$

A)  $\{2, -1\}$

B)  $\{2, 1\}$

C)  $\{2, 0\}$

D)  $\left\{\frac{1}{2}, -1\right\}$

Write the equation in the standard form  $ax^2 + bx + c = 0$ . Then identify the values of  $a$ ,  $b$ , and  $c$ . Do not actually solve the equation.

9)  $2x^2 = 13x - 20$

A)  $a = 2, b = 13, c = 20$

B)  $a = 2, b = 13, c = -20$

C)  $a = 2, b = -13, c = 20$

D)  $a = 2, b = -13, c = -20$

Solve the equation. Express radicals in simplest form.

10)  $(x - 4)^2 = 49$

A)  $\{7, -7\}$

B)  $\{53\}$

C)  $\{11, -3\}$

D)  $\{-3, -11\}$

Solve the equation by completing the square.

11)  $z^2 + 16z + 46 = 0$

A)  $\{-16 + \sqrt{46}\}$

B)  $\{8 \pm \sqrt{46}\}$

C)  $\{-8 \pm \sqrt{18}\}$

D)  $\{8 + \sqrt{18}\}$

12)  $7x^2 + 4x - 3 = 0$

A)  $\left\{\frac{7}{3}, 1\right\}$

B)  $\left\{\frac{3}{7}, -1\right\}$

C)  $\left\{\frac{7}{3}, 0\right\}$

D)  $\left\{\frac{7}{3}, -1\right\}$

Solve the equation. Write radicals in simplified form, and write your answer in lowest terms.

13)  $2m^2 + 8m + 5 = 0$

A)  $\left\{\frac{-4 \pm \sqrt{6}}{4}\right\}$

B)  $\left\{\frac{-8 \pm \sqrt{6}}{2}\right\}$

C)  $\left\{\frac{-4 \pm \sqrt{6}}{2}\right\}$

D)  $\left\{\frac{-4 \pm \sqrt{26}}{2}\right\}$

Solve the equation. Express radicals in simplest form.

14)  $b^2 + \frac{4}{5}b = -\frac{1}{5}$

A)  $\left\{\frac{4 + \sqrt{5}}{10}, \frac{4 - \sqrt{5}}{10}\right\}$

B)  $\emptyset$

C)  $\left\{\frac{4}{5}\right\}$

D)  $\left\{0, \frac{4}{5}\right\}$

Perform the indicated operation. Give the result in standard form.

15)  $(2 - 3i) + (3 + 6i)$

A)  $5 - 3i$

B)  $-5 - 3i$

C)  $-1 + 9i$

D)  $5 + 3i$