Name: _____ Class: _____ Date: _____ ID: A

MA90 Exercises for section 9.5 Complex Solutions to Quadratic Equations

Short Answer

1. Write the radical as a complex number.

   $\sqrt{-36}$

   The complex number is _____.

   .

2. Write the radical as a complex number.

   $\sqrt{-17}$

   .

3. Write the radical as a complex number.

   $\sqrt{-112}$

   .

4. Solve the quadratic equation. Use whatever method seems to fit the situation or is convenient for you.

   $x^2 = 20x - 101$

   $x =$ _____

   .

5. Solve the quadratic equation. Use whatever method seems to fit the situation or is convenient for you.

   $(x - 9)^2 = -81$

   $x =$ _____

   .

6. Solve the quadratic equation. Use whatever method seems to fit the situation or is convenient for you.

$$\left(x + \frac{1}{7}\right)^2 = -\frac{64}{49}$$

.

7. Solve the quadratic equation. Use whatever method seems to fit the situation or is convenient for you.

$$x^2 - 11x + 24 = 0$$

$x =$ _____

.

8. Solve the quadratic equation. Use whatever method seems to fit the situation or is convenient for you.

$$\frac{1}{8}x^2 = -\frac{1}{3}x + \frac{1}{8}$$

.

9. Solve the quadratic equation. Use whatever method seems to fit the situation or is convenient for you.

$$(x - 3)(x + 3) = 10$$

.

10. Solve the quadratic equation. Use whatever method seems to fit the situation or is convenient for you.

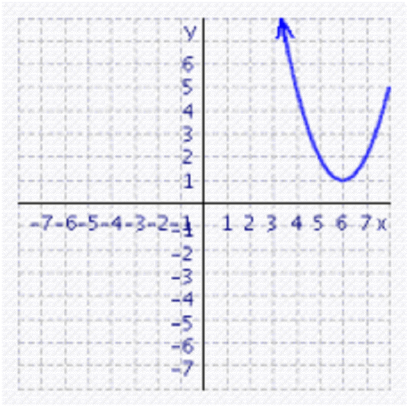
$(x - 10)(x - 2) = -41$

$x =$ _____

.

11. The graph of $y = x^2 - 12x + 37$ is shown in the figure. As you can see, the graph does not cross the x-axis. Hence the solutions to the following equation will not be real.
$0 = x^2 - 12x + 37$

Solve this equation. The solutions will confirm the fact that the graph cannot cross the x-axis.



$x =$ _____

12. Is $x = 2 + 2i$ a solution to the equation $x^2 - 4x + 8 = 0$?

.

13. If one solution to a quadratic equation is $2 + 9i$, what do you think the other solution is?

$x =$ _____

MA90 Exercises for section 9.5 Complex Solutions to Quadratic Equations
Answer Section

SHORT ANSWER

1. ANS:
$6i$

PTS: 1

2. ANS:
$i\sqrt{17}$

PTS: 1

3. ANS:
$4i\sqrt{7}$

PTS: 1

4. ANS:
$10 + i, 10 - i$

PTS: 1

5. ANS:
$9 + 9i, 9 - 9i$

PTS: 1

6. ANS:
$\frac{-1 + 8i}{7}, \frac{-1 - 8i}{7}$

PTS: 1

7. ANS:
3, 8

PTS: 1

8. ANS:
$\frac{1}{3}, -3$

PTS: 1

9. ANS:
$\sqrt{19}, -\sqrt{19}$

PTS: 1

10. ANS:
$6 + 5i, 6 - 5i$

PTS: 1

11. ANS:
$6 + i, 6 - i$

PTS: 1

12. ANS:
yes

PTS: 1

13. ANS:
$2 - 9i$

PTS: 1