

A.REI.B.4: Solving Quadratics 11

1 The solutions of the equation $y^2 - 3y = 9$ are

- 1) $\frac{3 \pm 3i\sqrt{3}}{2}$
- 2) $\frac{3 \pm 3i\sqrt{5}}{2}$
- 3) $\frac{-3 \pm 3\sqrt{5}}{2}$
- 4) $\frac{3 \pm 3\sqrt{5}}{2}$

2 The roots of the equation $x^2 - 3x + 7 = 0$ are

- 1) $\frac{3 \pm \sqrt{19}}{2}$
- 2) $\frac{3 \pm i\sqrt{19}}{2}$
- 3) $3 \pm \frac{\sqrt{19}}{2}$
- 4) $3 \pm \frac{i\sqrt{19}}{2}$

3 The roots of the equation $3x^2 - 4x + 2 = 0$ are

- 1) $\frac{1 \pm \sqrt{2}}{3}$
- 2) $\frac{2 \pm i\sqrt{2}}{3}$
- 3) $\frac{2 \pm \sqrt{10}}{3}$
- 4) $4 \pm \frac{i\sqrt{2}}{3}$

4 Solve the equation for x and express the roots in simplest $a + bi$ form: $4x^2 - 12x + 25 = 0$

5 Solve for x and express the roots of the equation $8x^2 - 28x + 29 = 0$ in simplest $a + bi$ form.

6 Solve the equation $3x^2 + 5 = 4x$ and express the roots in simplest $a + bi$ form.

7 Solve the equation for x and express the roots in simplest $a + bi$ form: $3x^2 = 2x - 1$

8 Solve for x and express the roots in terms of i :
 $-3x^2 + 2x = 2$

9 Solve for x and express the roots in terms of i :
 $2x^2 = 6x - 5$

10 Express the roots of the equation $-6x = 2x^2 + 5$ in simplest $a + bi$ form.

11 Express the roots of the equation $2x^2 = -3(2x + 3)$ in $a + bi$ form.

12 Express the roots of the equation $3x^2 = -2(2x + 3)$ in $a + bi$ form.

13 Express the roots of the equation $9x^2 = 2(3x - 1)$ in simplest $a + bi$ form.

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Answer Section

1 ANS: 4

$$\frac{3 \pm \sqrt{(-3)^2 - 4(1)(-9)}}{2(1)} = \frac{3 \pm \sqrt{45}}{2} = \frac{3 \pm 3\sqrt{5}}{2}$$

REF: 061009a2

2 ANS: 2

REF: 068526siii

3 ANS: 2

REF: 088526siii

4 ANS:

$$\frac{3}{2} \pm 2i$$

REF: 089838siii

5 ANS:

$$\frac{7}{4} \pm \frac{3}{4}i$$

REF: 069937siii

6 ANS:

$$\frac{2}{3} \pm \frac{i\sqrt{11}}{3}. \quad 3x^2 - 4x + 5 = 0. \quad \frac{-(-4) \pm \sqrt{(-4)^2 - 4(3)(5)}}{2(3)} = \frac{4 \pm \sqrt{-44}}{6} = \frac{4 \pm 2i\sqrt{11}}{6} = \frac{2 \pm i\sqrt{11}}{3}$$

REF: 080931b

7 ANS:

$$\frac{1}{3} \pm \frac{i\sqrt{2}}{3}$$

REF: 010438siii

8 ANS:

$$\frac{1 \pm i\sqrt{5}}{3}$$

REF: 019542siii

9 ANS:

$$\frac{3 \pm i}{2}$$

REF: 089541siii

10 ANS:

$$-\frac{3}{2} \pm \frac{1}{2}i$$

REF: 080238siii

11 ANS:

$$-\frac{3}{2} \pm \frac{3}{2}i$$

REF: 068636siii

12 ANS:

$$-\frac{2}{3} \pm \frac{i\sqrt{14}}{3}$$

REF: 089037siii

13 ANS:

$$\frac{1}{3} \pm \frac{i}{3}$$

REF: 060138siii