

A.REI.B.4: Solving Quadratics 7

- 1 Max solves a quadratic equation by completing the square. He shows a correct step:

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

What are the solutions to his equation?

- 1) $2 \pm 3i$
- 2) $-2 \pm 3i$
- 3) $3 \pm 2i$
- 4) $-3 \pm 2i$

- 2 The roots of the equation $x^2 + 2x + 5 = 0$ are

- 1) -3 and 1
- 2) -1 , only
- 3) $-1 + 2i$ and $-1 - 2i$
- 4) $-1 + 4i$ and $-1 - 4i$

- 3 The roots of the equation $x^2 - 4x + 9 = 0$ are

- 1) $2 \pm i\sqrt{5}$
- 2) $2 \pm \sqrt{5}$
- 3) $2 \pm i\sqrt{13}$
- 4) $2 \pm \sqrt{13}$

- 4 The solutions to the equation $-\frac{1}{2}x^2 = -6x + 20$ are

- 1) $-6 \pm 2i$
- 2) $-6 \pm 2\sqrt{19}$
- 3) $6 \pm 2i$
- 4) $6 \pm 2\sqrt{19}$

- 5 Solve for x in simplest $a + bi$ form: $x^2 + 8x + 25 = 0$

- 6 In physics class, Taras discovers that the behavior of electrical power, x , in a particular circuit can be represented by the function $f(x) = x^2 + 2x + 7$. If $f(x) = 0$, solve the equation and express your answer in simplest $a + bi$ form.

- 7 Solve the equation $x^2 = 6x - 12$ and express the roots in simplest $a + bi$ form.

- 8 Express, in simplest $a + bi$ form, the roots of the equation $x^2 + 5 = 4x$.

- 9 Find the roots of the equation $x^2 + 7 = 2x$ and express your answer in simplest $a + bi$ form.

- 10 Solve the equation $x^2 - 4x = -13$ and express the roots in the form $a + bi$.

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

- 12 Solve the equation $x^2 = 4x - 20$ and express your answers in the form $a + bi$.

- 13 Solve the equation $x^2 - 4x = -10$ and express the roots in terms of i .
- 14 Solve the equation $6x - 34 = x^2$ and express the roots in simplest $a + bi$ form.
- 15 Solve for x and express the roots in simplest $a + bi$ form: $x^2 = 6x - 10$
- 16 Solve for x and express your answer in simplest $a + bi$ form: $x^2 + 29 = 4x$
- 17 Solve for x and express your answer in simplest $a + bi$ form: $x^2 - 10x = -41$
- 18 Solve the equation $x(x - 2) + 2 = 0$, and express the roots in the form $a + bi$.
- 19 Express the roots of the equation $x^2 + 1 = 8(x - 3)$ in $a + bi$ form.
- 20 Express the roots of the equation $x^2 + 1 = 4(x - 1)$ in $a + bi$ form.
- 21 Express the roots of the equation $2x^2 + 4x + 5 = 0$ in simplest $a + bi$ form.
- 22 Solve for x and express in simplest $a + bi$ form:
 $3x^2 - 6x + 4 = 0$
- 23 Solve for x and express your answer in simplest $a + bi$ form: $\frac{x^2}{4} = x - 2$

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Answer Section

1 ANS: 2

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

$$x+2 = \pm\sqrt{-9}$$

$$x = -2 \pm 3i$$

REF: 011408a2

2 ANS: 3

$$x^2 + 2x + 1 = -5 + 1$$

$$(x+1)^2 = -4$$

$$x+1 = \pm 2i$$

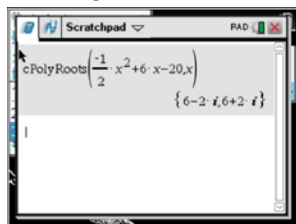
$$x = -1 \pm 2i$$

REF: 081703aII

3 ANS: 1

REF: 088422sIII

4 ANS: 3



$$-2\left(-\frac{1}{2}x^2 = -6x + 20\right)$$

$$x^2 - 12x = -40$$

$$x^2 - 12x + 36 = -40 + 36$$

$$(x-6)^2 = -4$$

$$x-6 = \pm 2i$$

$$x = 6 \pm 2i$$

REF: fall1504aII

5 ANS:

$$x^2 + 8x = -25$$

$$x^2 + 8x + 16 = -25 + 16$$

$$(x + 4)^2 = -9$$

$$x + 4 = \sqrt{-9}$$

$$x = -4 \pm 3i$$

REF: 010222b

6 ANS:

$$x^2 + 2x = -7$$

$$x^2 + 2x + 1 = -7 + 1$$

$$(x + 1)^2 = -6$$

$$x + 1 = \sqrt{-6}$$

$$x = -1 \pm i\sqrt{6}$$

REF: 010627b

7 ANS:

$$x^2 - 6x = -12 \quad . .$$

$$x^2 - 6x + 9 = -12 + 9$$

$$(x - 3)^2 = -3$$

$$x - 3 = \sqrt{-3}$$

$$x = 3 \pm i\sqrt{3}$$

REF: fall9928b

8 ANS:

$$x^2 - 4x = -5$$

$$x^2 - 4x + 4 = -5 + 4$$

$$(x - 2)^2 = -1$$

$$x - 2 = \sqrt{-1}$$

$$x = 2 \pm i$$

REF: 080328b

9 ANS:

$$x^2 - 2x = -7$$

$$x^2 - 2x + 1 = -7 + 1$$

$$(x - 1)^2 = -6$$

$$x - 1 = \sqrt{-6}$$

$$x = 1 \pm i\sqrt{6}$$

REF: 010931b

10 ANS:

$$2 \pm 3i$$

REF: 068038siii

11 ANS:

$$1 \pm 2i$$

REF: 088537siii

12 ANS:

$$2 \pm 4i$$

REF: 088637siii

13 ANS:

$$2 \pm i\sqrt{6}$$

REF: 088738siii

14 ANS:

$$3 \pm 5i$$

REF: 088937siii

15 ANS:

$$3 \pm i$$

REF: 019736siii

16 ANS:

$$2 \pm 5i$$

REF: 010339siii

17 ANS:

$$5 \pm 4i$$

REF: 060042siii

18 ANS:

$$1 \pm i$$

REF: 018737siii

19 ANS:
 $4 \pm 3i$

REF: 019638siii

20 ANS:
 $2 \pm i$

REF: 018942siii

21 ANS:
 $-1 \pm \frac{\sqrt{6}}{2}i$

REF: 089939siii

22 ANS:
 $1 \pm \frac{i\sqrt{3}}{3}$

REF: 019440siii

23 ANS:
 $2 \pm 2i$

REF: 010242siii