

A.REI.B.4: Solving Quadratics 10

- 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 $x^2 - 4x + 9 = 0$ are
- 1) $2 \pm i\sqrt{5}$
 - 2) $2 \pm \sqrt{5}$
 - 3) $2 \pm i\sqrt{13}$
 - 4) $2 \pm \sqrt{13}$
- 3 Solve for x in simplest $a + bi$ form: $x^2 + 8x + 25 = 0$
- 4 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.
- 5 Solve the equation $x^2 = 6x - 12$ and express the roots in simplest $a + bi$ form.
- 6 Express, in simplest $a + bi$ form, the roots of the equation $x^2 + 5 = 4x$.
- 7 Find the roots of the equation $x^2 + 7 = 2x$ and express your answer in simplest $a + bi$ form.
- 8 Solve the equation $x^2 - 4x = -13$ and express the roots in the form $a + bi$.
- 9 Express the roots of the equation $x^2 = 2x - 5$ in $a + bi$ form.
- 10 Solve the equation $x^2 = 4x - 20$ and express your answers in the form $a + bi$.
- 11 Solve the equation $x^2 - 4x = -10$ and express the roots in terms of i .
- 12 Solve the equation $6x - 34 = x^2$ and express the roots in simplest $a + bi$ form.
- 13 Solve for x and express the roots in simplest $a + bi$ form: $x^2 = 6x - 10$
- 14 Solve for x and express your answer in simplest $a + bi$ form: $x^2 + 29 = 4x$
- 15 Solve for x and express your answer in simplest $a + bi$ form: $x^2 - 10x = -41$
- 16 Solve the equation $x(x - 2) + 2 = 0$, and express the roots in the form $a + bi$.
- 17 Express the roots of the equation $x^2 + 1 = 8(x - 3)$ in $a + bi$ form.
- 18 Express the roots of the equation $x^2 + 1 = 4(x - 1)$ in $a + bi$ form.
- 19 Express the roots of the equation $2x^2 + 4x + 5 = 0$ in simplest $a + bi$ form.
- 20 Solve for x and express in simplest $a + bi$ form:
 $3x^2 - 6x + 4 = 0$
- 21 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: 1

REF: 088422siii

3 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

4 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

5 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

6 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

7 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

8 ANS:

$$2 \pm 3i$$

REF: 068038siii

9 ANS:

$$1 \pm 2i$$

REF: 088537siii

10 ANS:

$$2 \pm 4i$$

REF: 088637siii

11 ANS:

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

REF: 088738siii

12 ANS:

$$3 \pm 5i$$

REF: 088937siii

13 ANS:

$$3 \pm i$$

REF: 019736siii

14 ANS:
 $2 \pm 5i$

REF: 010339siii

15 ANS:
 $5 \pm 4i$

REF: 060042siii

16 ANS:
 $1 \pm i$

REF: 018737siii

17 ANS:
 $4 \pm 3i$

REF: 019638siii

18 ANS:
 $2 \pm i$

REF: 018942siii

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

REF: 089939siii

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

REF: 019440siii

21 ANS:
 $2 \pm 2i$

REF: 010242siii