

If MC, use PLYSMT+2, 1: Poly Root Finder

Name Schlansky
Mr. Schlansky

Date _____
Algebra II



Solving Quadratic Equations Regents Practice

1. What are the solutions to $4x^2 - 7x - 2 = -10$

1) $-\frac{1}{4}, 2$

NO NO

3) $\frac{7}{8} \pm \frac{\sqrt{241}}{8}$

2) $\frac{7}{8} \pm \frac{\sqrt{79}}{8}i$

$4x^2 - 7x + 8 = 0$

4) $\frac{7}{8} \pm \frac{\sqrt{143}}{8}i$

$\frac{7}{8} \pm 1.111024302i$

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1

$X = \frac{7}{8} \pm 1.111024302i$

2. The solutions to the equation $3x^2 - 4x + 2 = 2x - 3$ are

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

$-2x + 3 - 2x + 3$

1) $1 \pm \frac{\sqrt{12}}{3}$

2) $1 \pm \frac{\sqrt{6}}{3}i$

$3x^2 - 6x + 5 = 0$

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

$1 \pm .816496809i$

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1

$X = 1 \pm .816496809i$

3. The roots of the equation $0 = x^2 + 6x + 10$ in simplest $a + bi$ form are

1) $-3 \pm 2i$

3) $-3 \pm i$

2) $-6 \pm i$

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

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1

$X = -3 \pm i$

4. The roots of the equation $x^2 - 4x = -13$ are

1) $2 \pm 3i$

$+13 +13$

3) $2 \pm \sqrt{17}$

2) $2 \pm 6i$

$x^2 - 4x + 13 = 0$

4) $2 \pm \sqrt{13}$

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1

$X = 2 \pm 3i$

5. A solution of the equation $2x^2 + 3x + 2 = 0$ is

$-\frac{3}{4} \pm .6614378278i$

1) $-\frac{3}{4} + \frac{1}{4}i\sqrt{7}$

3) $-\frac{3}{4} + \frac{1}{4}\sqrt{7}$

2) $-\frac{3}{4} + \frac{1}{4}i$

4) $\frac{1}{2}$

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1

$X = -\frac{3}{4} \pm .6614378278i$

6. 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) $6 \pm 2\sqrt{19}$

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1

$X = 6 \pm 2i$

7. Which equation has roots of $3 + i$ and $3 - i$?

1) $x^2 - 6x + 10 = 0$

3) $x^2 - 10x + 6 = 0$

2) $x^2 + 6x - 10 = 0$

4) $x^2 + 10x - 6 = 0$

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each choice

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

8. If a solution of $2(2x-1) = 5x^2$ is expressed in simplest $a+bi$ form, the value of b is

1) $\frac{\sqrt{6}}{5}i$

3) $\frac{1}{5}i$

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

Only $5x^2+2$

2) $\frac{\sqrt{6}}{5}$

4) $\frac{1}{5}$

$0 = 5x^2 - 4x + 2$

$x = \frac{2}{5} \pm \frac{\sqrt{4848}}{5}i$

Solve the following equations and express your answer in simplest $a+bi$ form.

9. $x^2 + 3x + 11 = 0$

10. $3x^2 + 5x + 8 = 0$

$a=1$
 $b=3$
 $c=11$

$x = \frac{-3 \pm \sqrt{(3)^2 - 4(1)(11)}}{2(1)}$

$a=3$
 $b=5$
 $c=8$

$x = \frac{-5 \pm \sqrt{(5)^2 - 4(3)(8)}}{2(3)}$

$x = \frac{-5 \pm i\sqrt{71}}{6}$

$x = \frac{-3 \pm \sqrt{-35}}{2}$

$x = \frac{-5 \pm \sqrt{-71}}{6}$

$x = \frac{-3 \pm i\sqrt{35}}{2}$

$x = \frac{-5 \pm i\sqrt{71}}{6}$

11. $x^2 + 4x = -8$
 $+8+8$

12. $4x^2 + 2x = -1$
 $+1+1$

$a=1$
 $b=4$
 $c=8$

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

$4x^2 + 2x + 1 = 0$

$x = \frac{-4 \pm \sqrt{(4)^2 - 4(1)(8)}}{2(1)}$

$a=4$
 $b=2$
 $c=1$
 $x = \frac{-2 \pm \sqrt{(2)^2 - 4(4)(1)}}{2(4)}$

$\sqrt{-16}$
 $i\sqrt{16}$
 $4i$

$x = \frac{-4 \pm \sqrt{-16}}{2}$

$x = \frac{-2 \pm \sqrt{-12}}{8}$

$\sqrt{-12}$
 $i\sqrt{12}$
 $\sqrt{4}\sqrt{3}$
 $2i\sqrt{3}$

$x = \frac{-2 \pm 2i\sqrt{3}}{8}$

$x = \frac{-1 \pm i\sqrt{3}}{4}$

13. $2x^2 - 6x = -5$
 $+5+5$

14. $3x^2 = 4x - 2$
 $-4x+2 \quad -4x+2$

$2x^2 - 6x + 5 = 0$

$3x^2 - 4x + 2 = 0$

$a=2$
 $b=-6$
 $c=5$

$x = \frac{6 \pm \sqrt{(-6)^2 - 4(2)(5)}}{2(2)}$

$a=3$
 $b=-4$
 $c=2$

$x = \frac{4 \pm \sqrt{(-4)^2 - 4(3)(2)}}{2(3)}$

$\sqrt{-8}$
 $i\sqrt{8}$
 $\sqrt{4}\sqrt{2}$
 $2i\sqrt{2}$

$x = \frac{6 \pm \sqrt{-4}}{4}$

$x = \frac{4 \pm \sqrt{-8}}{6}$

$\sqrt{-4}$
 $i\sqrt{4}$
 $2i$

$x = \frac{6 \pm 2i}{4}$

$x = \frac{4 \pm 2i\sqrt{2}}{6}$

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

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