Solve the following equations using any method.

$$1.\ y = x^2 + 4x - 21 \qquad\qquad 2.\ y = 6x^2 + x - 2$$

Simplify the following expressions.

$$3.\ (4 + 3i)(1 + 2i) \qquad\qquad 4.\ 6\sqrt{-3} + \sqrt{-75}$$

Objectives   Create quadratic equations from given roots.

Homework   Packet Page 11-14 all

Homework Review

It's time to work backwards

We've been finding solutions to quadratic equations using factoring, graphing and the quadratic formula.

Now we'll work backwards from the solutions and create the original quadratic solution.

EXAMPLE 1 – Find the quadratic equations whose roots are 4 and -2.

Set each solution equal to x.

Subtract the constant from both sides to make the equation equal to zero.

Create a factor equation. (Look familiar?)

Foil the factors.

Combine Like Terms. This is our Quadratic Equation.

EXAMPLE 2 – Find the quadratic equations whose solutions are $\frac{2}{3}$ and $\frac{3}{4}$.

Set each solution equal to x.

Clear the fractions by multiplying by the denominators.

Subtract the constant from both sides to make the equation equal to zero.
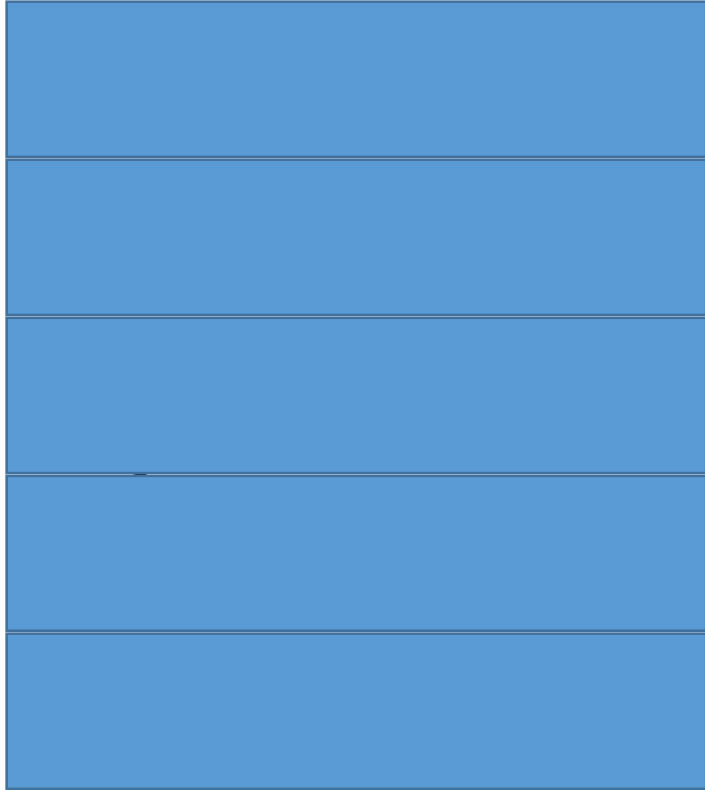
Create a factor equation.

Foil the factors.

Combine Like Terms. This is our Quadratic Equation.

Complete Practice Problem 1 and 2.

Irrational Solutions

EXAMPLE 4 – Find the quadratic equations whose solutions are $2 - 5\sqrt{2}$ and $2 + 5\sqrt{2}$.

Write as one expression equal to x.

Isolate the radical term.

Square both sides and simplify.

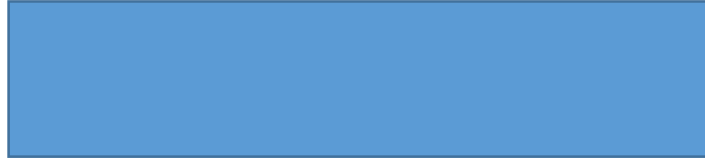Subtract the constant from both sides to make the equation equal to zero.
Our solution.

Complete Practice Problem 3.

Complex Solutions

EXAMPLE 5 – Find the quadratic equations whose solutions are *4-5i* and *4+5i*.

Write as one expression equal to x.

Isolate the i term.

Square both sides and simplify.

Subtract the constant from both sides to make the equation equal to zero.
Our solution.

Complete Practice Problem 4.

Work on your homework.