Section 5-9 Continued

We can use knowledge of imaginary #s to solve equations.

Solve for x: $4x^2 + 36 = 0$

$-36 \quad -36$

$\frac{4x^2}{4} = \frac{-36}{4}$

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

$x = \pm 3i$

Check it:

$4x^2+36=0$

$4(3i)^2+36=0$

$4\cdot 9\cdot i^2+36=0$

$36\cdot -1+36=0$

$-36+36=0$

$0=0$ ✓

$4x^2+36=0$

$4(-3i)^2+36=0$

$4\cdot 9\cdot i^2+36=0$

$0=0$ ✓

Complex number: Any # in the form $a + bi$.

where a, b are real, i is imaginary.

ex.) $5 + 3i$

real part

imaginary part

ex a. $(8 - 5i) + (2 + i)$

$10 + -4i$

ex b $(4 + 7i) - (2 + 3i)$

$2 + 4i$

ex c $(4 + 2i)(3 - 5i)$

F O I L

$12 - 20i + 6i - 10i^2$

-1

$12 - 14i + 10$

$22 - 14i$