
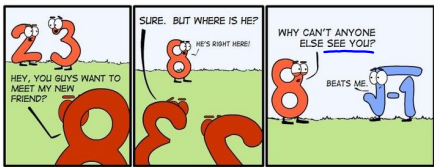


Wednesday, August 31st

Do Now: Simplify $\frac{3 \pm \sqrt{-81}}{3}$ Homework on desk!

$\frac{3 \pm \sqrt{-81}}{3} = \frac{3 \pm 9i}{3}$

$8+i$
 $1+3i$
 $1-3i$

Sep 1-7:12 PM

1) $\sqrt{-49} = 7i$ *5) $-18 - \sqrt{-25} = -18 - 5i$
 *2) $\sqrt{-2} = i\sqrt{2}$ $\sqrt{2}i$ 6) $5 + \sqrt{-6} = 5 + 6i$
 *3) $(4i)^2 = -16$ *7) $\sqrt{-9-16} = 4i\sqrt{-16}$
 4) $(3i)^2 = -9$ *8) $\frac{2 \pm \sqrt{-16}}{2} =$
 $1+2i$ and $1-2i$

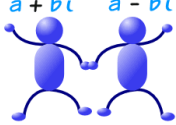
$\frac{2 \pm \sqrt{-16}}{2} = \frac{2 \pm 4i}{2} = \frac{2+4i}{2} = 1+2i$
 $\frac{2-4i}{2} = 1-2i$

Aug 30-9:49 AM

Complex Conjugates

When simplifying the quadratic formula, imaginary numbers always bring their opposite friend.

$a+bi$ $a-bi$



$3+2i$ $3+2i$ $3-2i$

ALWAYS

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Multiplying Complex Numbers

$i^2 = -1$

$6(3+4i) = 18+24i$ $3(4+2i) = 12+6i$
 $7i(2-5i) = 14i - 35i^2 = 35+14i$ $2i(-5+8i) = -10i + 16i^2 = -10i - 16$
 $(5+i)(6-2i) = 30 - 10i + 6i - 2i^2 = 30 - 4i + 2 = 32-4i$
 $(3-i)(2i+5) = 6i - 2i^2 + 15 - 5i = 17+i$

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Graphic Organizer

COMPLEX NUMBERS Name: _____

a is a **real** number bi is an **imaginary** number

$a+bi$

$i = \sqrt{-1}$ $i^2 = -1$ $i^3 = -i$ $i^4 = 1$

$(a+bi)$ and $(a-bi)$ are **Complex conjugates** $i^6 = 1$ $i^7 = i$ $i^8 = -1$ $i^{10} = 1$

$P = -1$

Adding & Subtracting complex numbers:
 When adding & subtracting complex numbers, combine like terms.
 1) $(4-2i) + (3+5i) = 4-2i+3+5i = 7+3i$
 2) $i + (11-8i) - (6-3i) = i+11-8i-6+3i = 5-4i$

Multiplying complex numbers:
 1) $8(7+6i) = 56+48i$
 2) $4i(3+i) = 12i-4 = -4+12i$
 3) $(6+5i)(3+4i) = 18+24i+15i+20i^2 = 18+39i-20 = -2+39i$

$(1+2i) - 3 + (6-4+5) = 2+3i$
 $(2+i)(3-i) = 2(3-i) + 1(3-i) = 6-2i+3-i = 9-3i$
 $(2+i) + (3-i) = 2+i+3-i = 2+3i$

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Exit Slip

Find the Product:

$(3+i)(2-4i) =$

Homework: Complex Numbers worksheet!

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