

Tuesday, August 30th

Do Now:

Solve the following:

1) $\sqrt{25} = 5$

2) $\sqrt{9-\sqrt{5}} = .76$

3) $\sqrt{9} + \sqrt{16} = 7$

4) $\sqrt{7} \cdot \sqrt{4} = \sqrt{28} = 5.2$

Homework on desk!

Aug 30-7:26 AM

Homework Solutions:

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

Always set $ax^2 + bx + c = 0$

11) $x=3, x=1$

13) $x=1, x=7$

15) $x=-5$

17) $x=2.6, x=.38$

19) $x=1.72, x=-.387$

21) $x=4, x=1$

$3x^2 + 7x = -10$
 $3x^2 + 7x + 10 = 0$

Aug 30-8:18 AM

$x^2 = 3x - 1$

$x^2 - 3x + 1 = 0$

$a=1$
 $b=-3$
 $c=1$

$$x = \frac{-(-3) \pm \sqrt{9 - 4(1)(1)}}{2(1)}$$

$$x = \frac{3 \pm \sqrt{5}}{2}$$

$\frac{3+\sqrt{5}}{2}$ $\frac{3-\sqrt{5}}{2}$

Aug 30-10:28 AM

Who's had an imaginary friend?

Ms. Stilson + Joel

Alex + Danny

$7+i$ $13+1,000,000i$

Who has not?

Yasir + $0(i)$

Madison + $0(i)$

Real numbers do not have imaginary friends.

$3+0i$

Aug 30-9:37 AM

Who came up with this??!

$8 \div 3 = ?$ No solution

$8 \div 3 = \frac{8}{3} = 2.6\bar{6}$

$\sqrt{25} = 5$ $\sqrt{-25} = 5i$

What is i anyway?


$i = \sqrt{-1}$

Rafael Bombelli

$\sqrt{-7} = \sqrt{-1} \sqrt{7} = i\sqrt{7}$

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

$\sqrt{-15} = i\sqrt{15}$



Aug 30-9:40 AM

$i = \sqrt{-1}$

$i^2 = i \cdot i = -1$

$i^3 = i \cdot i \cdot i = -\sqrt{-1} = -i$

$i^4 = i \cdot i \cdot i \cdot i = 1$

$i^5 = i \cdot i \cdot i \cdot i \cdot i = i$

$i^6 = i \cdot i \cdot i \cdot i \cdot i \cdot i = -1$

$i^7 = -i$

$i^8 = 1$

Aug 30-9:47 AM

$$4 = \sqrt{16}$$

$$4 \cdot 4 = 16$$

Aug 30-10:40 AM

Adding and Subtracting with imaginary numbers

Do not add or subtract if they are not in the same "house"!!!

$$\sqrt{-6+(-3)} = \sqrt{-9} = 3i$$

$$\sqrt{-6} + \sqrt{-3} \neq \sqrt{-9}$$

$$\sqrt{-6} + \sqrt{-3} = i\sqrt{6} + i\sqrt{3} = i(\sqrt{6} + \sqrt{3})$$

Aug 30-9:57 AM

$$\sqrt{-6+(-3)} = \sqrt{-9}$$

$$= i\sqrt{9}$$

$$= 3i$$

$$\sqrt{-6} + \sqrt{-3} = i\sqrt{6} + i\sqrt{3}$$

$$= i(\sqrt{6} + \sqrt{3})$$

Complex Numbers

$$a + bi$$

↑ real ↑ imaginary

$$3 + 6i$$

$$\sqrt{-36}$$

0+

Aug 30-10:48 AM

Practice:

- $\sqrt{-8} + \sqrt{-9} =$
- $\sqrt{-6} + 2 =$
- $3 + \sqrt{-16} =$
- $\sqrt{-25} + \sqrt{-81} =$

Challenge:

$$13 + \sqrt{-4} + \sqrt{4} - 9 + \sqrt{25-9} =$$

$$13 + 2i + 2 - 9 + \sqrt{16} = 10 + 2i$$

Aug 30-10:02 AM

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

DMP

Exit Slip:

What is $\sqrt{-4} + \sqrt{-9} =$ ___

Aug 30-9:49 AM