Name: _____ ID: A

Simplify the expression.

conjugate : $(a+bi)(a-bi) = a^2+b^2$

10. $\frac{2+6i}{1+5i} \cdot \frac{1-5i}{1-5i} = \frac{(2+6i)(1-5i)}{26} = \frac{2-10i+6i+30}{26} = \frac{32-4i}{26} = \boxed{\frac{16-2i}{13}}$

What is the solution of the quadratic system of equations?

11. $\begin{cases} y = x^2+15x+17 \\ y = -x^2+5x+5 \end{cases}$ substitute.

$-x^2+5x+5 = x^2+15x+17$

$-2x^2-10x-12=0$

$x = \frac{-b\pm\sqrt{b^2-4ac}}{2a} = \frac{10\pm\sqrt{4}}{-4} = \frac{10\pm2}{-4}$

$x_1 = \frac{10+2}{-4} = \boxed{-3}$ $x_2 = \frac{10-2}{-4} = \boxed{-2}$

$x=-3$

$y = -(-3)^2+5(-3)+5$

$= \boxed{-19}$

$x=-2$

$y = (-2)^2+15(-2)-17$

$= \boxed{-9}$

$\boxed{(-3,19),(-2,-9)}$

Use the Quadratic Formula to solve the equation.

12. $2x^2+x-4=0$

$x = \frac{-b\pm\sqrt{b^2-4ac}}{2a} = \frac{-1\pm\sqrt{1^2-4\cdot2(-4)}}{2\cdot2} = \boxed{\frac{-1\pm\sqrt{33}}{4}}$