Algebra 2   Name_____ ID: 1

Complex numbers: Rationalizing and Quadratics   Date_____ Period____

Simplify.

1) $\dfrac{7}{5i}$

2) $\dfrac{-4}{-7i}$

3) $\dfrac{-2}{-3i}$

4) $\dfrac{8}{i}$

5) $\dfrac{1}{-7 + 2i}$

6) $\dfrac{-2 + 8i}{4i}$

7) $\dfrac{1 - 2i}{-4i}$

8) $\dfrac{5i}{-7 + 8i}$

9) $\dfrac{-5 + 3i}{-8 + 6i}$

10) $\dfrac{-4 - 10i}{-5 - 8i}$

Solve each equation with the quadratic formula.

11) $-4m^2 + 64 = 0$

12) $-3p^2 + 1 = -2p$

13) $-m^2 - 2m + 3 = -2m^2$

14) $5k^2 - 10k = -7 - 5k$

15) $-3a^2 - 14 + 2a = 2a - 9$

16) $2x^2 - 2 = -3x$

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Simplify.

1) $\dfrac{7}{5i}$

$-\dfrac{7i}{5}$

2) $\dfrac{-4}{-7i}$

$-\dfrac{4i}{7}$

3) $\dfrac{-2}{-3i}$

$-\dfrac{2i}{3}$

4) $\dfrac{8}{i}$

$-8i$

5) $\dfrac{1}{-7 + 2i}$

$\dfrac{-7 - 2i}{53}$

6) $\dfrac{-2 + 8i}{4i}$

$\dfrac{i + 4}{2}$

7) $\dfrac{1 - 2i}{-4i}$

$\dfrac{i + 2}{4}$

8) $\dfrac{5i}{-7 + 8i}$

$\dfrac{-35i + 40}{113}$

9) $\dfrac{-5 + 3i}{-8 + 6i}$

$\dfrac{29 + 3i}{50}$

10) $\dfrac{-4 - 10i}{-5 - 8i}$

$\dfrac{100 + 18i}{89}$

Solve each equation with the quadratic formula.

11) $-4m^2 + 64 = 0$

$\{-4, 4\}$

12) $-3p^2 + 1 = -2p$

$\left\{-\dfrac{1}{3}, 1\right\}$

13) $-m^2 - 2m + 3 = -2m^2$

$\left\{1 + i\sqrt{2},\ 1 - i\sqrt{2}\right\}$

14) $5k^2 - 10k = -7 - 5k$

$\left\{\dfrac{5 + i\sqrt{115}}{10},\ \dfrac{5 - i\sqrt{115}}{10}\right\}$

15) $-3a^2 - 14 + 2a = 2a - 9$

$\left\{-\dfrac{i\sqrt{15}}{3},\ \dfrac{i\sqrt{15}}{3}\right\}$

16) $2x^2 - 2 = -3x$

$\left\{\dfrac{1}{2}, -2\right\}$