HW #6

Name____key____

Rationalizing Imaginary Denominators

Simplify.

1) $\dfrac{2}{8i} \cdot \dfrac{-8i}{-8i} = \dfrac{-16i}{64} = \boxed{\dfrac{-i}{4}}$

2) $\dfrac{3}{5i} \cdot \dfrac{-5i}{-5i} = \dfrac{-15i}{25} = \boxed{\dfrac{-3}{5}i}$

3) $\dfrac{-5}{-5i} \cdot \dfrac{5i}{5i} = \dfrac{-25i}{25} = \boxed{-i}$

4) $\dfrac{-1}{-9i} \cdot \dfrac{9i}{9i} = \dfrac{-9i}{81} = \boxed{\dfrac{-1}{9}i}$

5) $\dfrac{6}{-4i} \cdot \dfrac{4i}{4i} = \dfrac{24i}{16} = \boxed{\dfrac{3}{2}i}$

6) $\dfrac{6+8i}{9i} \cdot \dfrac{-9i}{-9i} = \dfrac{\overset{-54i+72}{-54i+72i^2}}{81} = \boxed{\dfrac{6i+8}{9}}$

$24i + 54$

7) $\dfrac{4-9i}{-6i} \cdot \dfrac{6i}{6i} = \dfrac{24i - 54i^2}{36}$

$\dfrac{24i + 54}{36}$

$\dfrac{4i + 9}{-6}$

$\boxed{\dfrac{2i}{3} + \dfrac{3}{2}}$

$\dfrac{-i-8}{}$

8) $\dfrac{-3+10i}{-6i} \cdot \dfrac{6i}{6i} = \dfrac{-18i + 60i}{36}$

$\dfrac{-3i - 10}{6}$

$\boxed{50i + 50}$

9) $\dfrac{-1+8i}{-i} \cdot \dfrac{i}{i} = \dfrac{-i + 8i^2}{1}$

$\boxed{-i - 8}$

10) $\dfrac{10-10i}{-5i} \cdot \dfrac{5i}{5i} = \dfrac{50i - 50i^2}{25} = \boxed{2i + 2}$

$\dfrac{50i + 50}{25}$

11) $\dfrac{5i}{-2-6i} \cdot \dfrac{-2+6i}{-2+6i} = \dfrac{-10i + 30i^2}{4+36} = \dfrac{-10i - 30}{40}$

$\boxed{\dfrac{-i-3}{4}}$

$\dfrac{-i}{4} \cdot i - \dfrac{3}{4}$

12) $\dfrac{8i}{-1+3i} \cdot \dfrac{-1-3i}{-1-3i} = \dfrac{-8i - 24i^2}{1+9} = \dfrac{-8i + 24}{10}$

$\boxed{\dfrac{-4i + 12}{5}}$

-1-

13) $\dfrac{1}{-8-5i} \cdot \dfrac{-8+5i}{-8+5i} = \dfrac{-8+5i}{64+25} = \boxed{\dfrac{-8+5i}{89}}$

14) $\dfrac{i}{-2-8i} \cdot \dfrac{-2+8i}{-2+8i} = \dfrac{-2i+8i^2}{4+64} = \dfrac{-2i-8}{68}$

$$\boxed{\dfrac{-i-4}{34}}$$

15) $\dfrac{4}{-3-6i} \cdot \dfrac{-3+6i}{-3+6i} = \dfrac{-12+24i}{9+36} = \dfrac{-12+24i}{45}$

$$\boxed{\dfrac{-4+8i}{15}}$$

16) $\dfrac{-10-5i}{-6+6i} \cdot \dfrac{-6-6i}{-6-6i} = \dfrac{60+60i+30i+30i^2}{36+36} = \boxed{\dfrac{5+15i}{12}}$

$$= \dfrac{60+90i-30}{72} = \dfrac{30+90i}{72}$$

17) $\dfrac{-5-9i}{9+8i} \cdot \dfrac{9-8i}{9-8i} = \dfrac{-45+40i-81i+72i^2}{81+64} =$

$$= \dfrac{-45-41i-72}{145} = \boxed{\dfrac{-117-41i}{145}}$$

18) $\dfrac{-4+10i}{3+4i} \cdot \dfrac{3-4i}{3-4i} = \dfrac{-12+16i+30i-40i^2}{9+16} =$

$$= \dfrac{-12+46i+40}{25} = \boxed{\dfrac{28+46i}{25}}$$

19) $\dfrac{-5-3i}{7-10i} \cdot \dfrac{7+10i}{7+10i} = \dfrac{-35-50i-21i-30i^2}{49+100}$

$= \dfrac{-35-71i+30}{149} = \boxed{\dfrac{-5-71i}{149}}$

20) $\dfrac{-3-7i}{7+10i} \cdot \dfrac{7-10i}{7-10i} = \dfrac{-21+30i-49i+70i^2}{49+100} =$

$= \dfrac{-21-19i-70}{149} = \boxed{\dfrac{-91-19i}{149}}$

21) $\dfrac{-1+i}{-5i} \cdot \dfrac{5i}{5i} = \dfrac{-5i+5i^2}{25} = \dfrac{-5i-5}{25}$

$= \boxed{\dfrac{-i-1}{5}}$

22) $\dfrac{-6-i}{i} \cdot \dfrac{-i}{-i} = \dfrac{6i+i^2}{1} = \dfrac{6i-1}{1} = \boxed{6i-1}$

23) $\dfrac{2+5i}{-i} \cdot \dfrac{i}{i} = \dfrac{2i+5i^2}{1} = \boxed{2i-5}$

24) $\dfrac{-4-4i}{4i} \cdot \dfrac{-4i}{-4i} = \dfrac{16i+16i^2}{16} = \dfrac{16i-16}{16}$

$\boxed{i-1}$

25) $\dfrac{3}{-i} \cdot \dfrac{i}{i} = \dfrac{3i}{1} = \boxed{3i}$

Complex Bingo

Kahoot

https://play.kahoot.it/#/k/8bd27620-622d-4b58-82a9-1ccd3eda99c4/intro

Quiz #3