

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

Rationalizing the Denominator with i - NOTES

Simplify.

$$1) \frac{-10 - 7i}{5i} \cdot \frac{i}{i}$$

$$= \frac{-10i - 7i^2}{5i^2} = \frac{-10i + 7}{-5}$$

$$2) \frac{-10 - i}{-7i} \cdot \frac{i}{i}$$

$$= \frac{-10i - i^2}{-7i^2} = \frac{-10i + 1}{7}$$

$$3) \frac{9 + 4i}{-4i} \cdot \frac{i}{i}$$

$$= \frac{9i + 4i^2}{-4i^2} = \frac{9i - 4}{4}$$

$$4) \frac{3i}{-4 + 4i} \cdot \frac{-4 - 4i}{-4 - 4i}$$

$$= \frac{3i(-4 - 4i)}{(-4 + 4i)(-4 - 4i)}$$

$$= \frac{-12i - 12i^2}{16 + 16i - 16i - 16i^2}$$

$$= \frac{-12i + 12}{16 + 16} = \frac{-12i + 12}{32}$$

$$= \frac{-3i + 3}{8}$$

$$5) \frac{8i}{-2+3i} \cdot \frac{-2-3i}{-2-3i}$$

$$\frac{8i(-2-3i)}{(-2+3i)(-2-3i)}$$

$$= \frac{-16i - 24i^2}{4 + \cancel{6i} - \cancel{6i} - 9i^2}$$

$$= \frac{-16i + 24}{4 + 9}$$

$$= \boxed{\frac{-16i + 24}{13}}$$

$$6) \frac{-3+2i}{-6-2i} \cdot \frac{-6+2i}{-6+2i}$$

$$= \frac{(-3+2i)(-6+2i)}{(-6-2i)(-6+2i)}$$

$$= \frac{18 - 6i - 12i + 4i^2}{36 - 12i + 12i - 4i^2}$$

$$= \frac{18 - 18i - 4}{36 + 4}$$

$$= \frac{14 - 18i}{40} = \boxed{\frac{7 - 9i}{20}}$$

$$7) \frac{2+4i}{6+6i} \cdot \frac{6-6i}{6-6i}$$

$$= \frac{(2+4i)(6-6i)}{(6+6i)(6-6i)}$$

$$= \frac{12 - 12i + 24i - 24i^2}{36 - 36i + 36i - 36i^2}$$

$$= \frac{12 + 12i + 24}{36 + 36}$$

$$= \frac{36 + 12i}{72} = \boxed{\frac{3 + i}{6}}$$