

4.5

$$1) \frac{1}{2+i} = \frac{1(2-i)}{(2+i)(2-i)} = \frac{2-i}{4-2i+2i-i^2} = \frac{2-i}{5} = \frac{2}{5} - \frac{1}{5}i$$

$$2) \frac{1}{4+3i} = \frac{1(4-3i)}{(4+3i)(4-3i)} = \frac{4-3i}{16-12i+12i-9i^2} = \frac{4-3i}{25} = \frac{4}{25} - \frac{3}{25}i$$

$$3) \frac{1}{-24-7i} = \frac{1(-24+7i)}{(-24-7i)(-24+7i)} = \frac{-24+7i}{576-168i+168i-49i^2} =$$
$$\frac{-24+7i}{625} = -\frac{24}{625} + \frac{7}{625}i$$

$$4) \frac{1}{-1-2i} = \frac{1(-1+2i)}{(-1-2i)(-1+2i)} = \frac{-1+2i}{1-2i+2i-4i^2} =$$
$$\frac{-1+2i}{5} = -\frac{1}{5} + \frac{2}{5}i$$

$$5) \frac{1}{2-i} = \frac{1(2+i)}{(2-i)(2+i)} = \frac{2+i}{4+2i-2i-i^2} = \frac{2+i}{5} = \frac{2}{5} + \frac{1}{5}i$$

$$6) \frac{1}{3+2i} = \frac{1(3-2i)}{(3+2i)(3-2i)} = \frac{3-2i}{9-6i+6i-4i^2} = \frac{3-2i}{13} = \frac{3}{13} - \frac{2}{13}i$$

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

$$8) \frac{1}{i} = \frac{1(-i)}{i(-i)} = \frac{-i}{1} = -i$$