4.7 1) $\dfrac{1+2\,i}{2+i} = \dfrac{(1+2\,i)\,(2-i)}{(2+i)\,(2-i)} = \dfrac{2-i+4\,i-2\,i^2}{4-2\,i+2\,i-i^2} = \dfrac{2+3\,i+2}{4+1} = \dfrac{4+3\,i}{5} =$

$\dfrac{4}{5} + \dfrac{3}{5}\,i$

2) $\dfrac{1+i}{2-5\,i} = \dfrac{(1+i)\,(2+5\,i)}{(2-5\,i)\,(2+5\,i)} = \dfrac{2+5\,i+2\,i+5\,i^2}{4+10\,i-10\,i-25\,i^2} = \dfrac{2+7\,i-5}{4+25} =$

$\dfrac{-3+7\,i}{29} = -\dfrac{3}{29} + \dfrac{7}{29}\,i$

3) $\dfrac{1+i}{2+2\,i} = \dfrac{(1+i)\,(2-2\,i)}{(2+2\,i)\,(2-2\,i)} = \dfrac{2-2\,i+2\,i-2\,i^2}{4-4\,i+4\,i-4\,i^2} = \dfrac{2+2}{4+4} = \dfrac{4}{8} = \dfrac{1}{2}$

4) $\dfrac{-3+i}{2+3\,i} = \dfrac{(-3+i)\,(2-3\,i)}{(2+3\,i)\,(2-3\,i)} = \dfrac{-6+9\,i+2\,i-3\,i^2}{4-6\,i+6\,i-9\,i^2} = \dfrac{-6+11\,i+3}{4+9} =$

$\dfrac{3+11\,i}{13} = \dfrac{3}{13} + \dfrac{11}{13}\,i$

5) $\dfrac{-1+3\,i}{3-5\,i} = \dfrac{(-1+3\,i)\,(3+5\,i)}{(3-5\,i)\,(3+5\,i)} = \dfrac{-3-5\,i+9\,i+15\,i^2}{9+15\,i-15\,i-25\,i^2} = \dfrac{-3+4\,i-15}{9+25} =$

$\dfrac{-18+4\,i}{34} = -\dfrac{18}{34} + \dfrac{4}{34}\,i = -\dfrac{9}{17} + \dfrac{2}{17}\,i$

6) $\dfrac{-2-2\,i}{-1+3\,i} = \dfrac{(-2-2\,i)\,(-1-3\,i)}{(-1+3\,i)\,(-1-3\,i)} = \dfrac{2+6\,i+2\,i+6\,i^2}{1+3\,i-3\,i-9\,i^2} = \dfrac{2+8\,i-6}{1+9} =$

$\dfrac{-4+8\,i}{10} = -\dfrac{4}{10} + \dfrac{8}{10}\,i = -\dfrac{2}{5} + \dfrac{4}{5}\,i$