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Algebra II

Dividing Complex Numbers

Divide the following complex numbers and express in a + b*i* form

1. $\frac{2}{(5-2i)}$ $(5+2i)$ $(5+2i)$

$\frac{10+4i}{25-4i^2}$

$\frac{10+4i}{25-4(-1)}$

$\frac{10+4i}{25+4}$

$\frac{10+4i}{29}$

$\frac{10}{29}+\frac{4}{29}i$

2. $\frac{9}{(-9-5i)}$ $(-9+5i)$ $(-9+5i)$

$\frac{-81+45i}{81-25i^2}$

$\frac{-81+45i}{81-25(-1)}$

$\frac{-81+45i}{81+25}$

$\frac{-81+45i}{106}$

$-\frac{81}{106}+\frac{45}{106}i$

3. $\frac{(7-2i)(5+i)}{(5-i)(5+i)}$

$\frac{35+7i-10i-2i^2}{25-i}$

$\frac{35-3i-2(-1)}{25-(-1)}$

$\frac{35-3i+2}{25+1}$

$\frac{37-3i}{26}$

$\frac{37}{26}-\frac{3}{26}i$

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

$\frac{-12+42i-4i+14i^2}{4-49i^2}$

$\frac{-12+38i+14(-1)}{4-49(-1)}$

$\frac{-12+38i-14}{4+49}$

$\frac{-26+38i}{53}$

$-\frac{26}{53}+\frac{38}{53}i$

5. $\frac{(9+i)(-1-3i)}{(-1+3i)(-1-3i)}$

$\frac{-9-27i-1i-3i^2}{1-9i^2}$

$\frac{-9-28i-3(-1)}{1-9(-1)}$

$\frac{-9-28i+3}{1+9}$

$\frac{-6-28i}{10}$

$-\frac{3}{5}-\frac{14}{5}i$

6. $\frac{(3-2i)(4+i)}{(4-i)(4+i)}$

$\frac{12+3i-8i-2i^2}{16-i^2}$

$\frac{12-5i-2(-1)}{16-(-1)}$

$\frac{12-5i+2}{16+1}$

$\frac{14-5i}{17}$

$\frac{14}{17}-\frac{5}{17}i$

7. $\frac{(8-3i)(7-5i)}{(7+5i)(7-5i)}$

$\frac{56-40i-21i+15i^2}{49-25i^2}$

$\frac{56-61i+15(-1)}{49-25(-1)}$

$\frac{56-61i-15}{49+25}$

$\frac{41-61i}{74}$

$\frac{41}{74}-\frac{61}{74}i$

8. $\frac{(4-4i)(1+i)}{(1-i)(1+i)}$

$\frac{4+4i-4i-4i^2}{1-i^2}$

$\frac{4-4(-1)}{1-(-1)}$

$\frac{4+4}{1+1}$

$\frac{8}{2}$

$4+0i$