

Name : _____

Rationalize the denominators

Sheet 1

Rationalize the denominator and then simplify.

1) $\frac{12 + 5i}{3 - 7i}$

2) $\frac{9 + \sqrt{-4}}{2 + i}$

3) $\frac{7 - 8i}{9i}$

4) $\frac{6 - \sqrt{-32}}{1 + \sqrt{-8}}$

5) $\frac{23}{9i}$

6) $\frac{16 + i}{4 - \sqrt{-25}}$

7) $\frac{-20 - 16i}{i}$

8) $\frac{14 - 3i}{6 + \sqrt{-36}}$

9) $\frac{19i}{5 - 3i}$

10) $\frac{-13 + 2i}{-3 - 5i}$

11) $\frac{24}{-2 + i}$

12) $\frac{-10 + 4i}{-11i}$

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Answer key

Sheet 1

Rationalize the denominators

Rationalize the denominator and then simplify.

1) $\frac{12 + 5i}{3 - 7i}$

$\frac{1}{58} + \frac{99}{58}i$

2) $\frac{9 + \sqrt{-4}}{2 + i}$

$4 - i$

3) $\frac{7 - 8i}{9i}$

$-\frac{8}{9} - \frac{7}{9}i$

4) $\frac{6 - \sqrt{-32}}{1 + \sqrt{-8}}$

$-\frac{10}{9} - \frac{16\sqrt{2}}{9}i$

5) $\frac{23}{9i}$

$-\frac{23}{9}i$

6) $\frac{16 + i}{4 - \sqrt{-25}}$

$\frac{59}{41} + \frac{84}{41}i$

7) $\frac{-20 - 16i}{i}$

$-16 + 20i$

8) $\frac{14 - 3i}{6 + \sqrt{-36}}$

$\frac{11}{12} - \frac{17}{12}i$

9) $\frac{19i}{5 - 3i}$

$-\frac{57}{34} + \frac{95}{34}i$

10) $\frac{-13 + 2i}{-3 - 5i}$

$\frac{29}{34} - \frac{71}{34}i$

11) $\frac{24}{-2 + i}$

$-\frac{48}{5} - \frac{24}{5}i$

12) $\frac{-10 + 4i}{-11i}$

$-\frac{4}{11} - \frac{10}{11}i$