

Operations of complex numbers

Date _____ Period _____

Add and subtract; final answer should be in standard form.

1) $(4 + i) + (7 - i)$

2) $(-4 + 3i) - (1 - 8i)$

3) $(-5 + 3i) - (-2 + 6i)$

4) $(-3 + 8i) + (5 + 6i)$

5) $(-2i) - 7 - (-2 + 8i)$

6) $(5 - 7i) - (2 + i)$

Simplify and write complex number in standard form.

7) $5(-8i)(1 + i)$

8) $(-8 - 8i)^2$

9) $(-4 + 2i)^2$

Challenge problems: complete any two and write in standard form.

10) $-6 - (-2 - 2i) - (5 - 4i)$

11) $-4(-7 + 8i)(-5 + 6i)$

12) $(-5 + 5i) - (4 - 2i) + (-8 - 7i)^2$

13) $(-4 - 6i) - (-7 - i) + (-5 - 4i)(8 + 4i)$

Rationalize the denominator to find the quotient.

14) $\frac{3i}{-3 + i}$

15) $\frac{10i}{-6 + i}$

16) $\frac{5}{6 - 2i}$

Simplify.

17) $\frac{-7 - 3i}{2 + 6i}$

18) $\frac{4 + i}{8 - 7i}$

19) $\frac{7 - 7i}{7 - 5i}$

20) $\frac{-10 - 2i}{-8 + 6i}$

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Date _____ Period _____

Add and subtract; final answer should be in standard form.

1) $(4 + i) + (7 - i)$

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2) $(-4 + 3i) - (1 - 8i)$

$-5 + 11i$

3) $(-5 + 3i) - (-2 + 6i)$

$-3 - 3i$

4) $(-3 + 8i) + (5 + 6i)$

$2 + 14i$

5) $(-2i) - 7 - (-2 + 8i)$

$-5 - 10i$

6) $(5 - 7i) - (2 + i)$

$3 - 8i$

Simplify and write complex number in standard form.

7) $5(-8i)(1 + i)$

$40 - 40i$

8) $(-8 - 8i)^2$

$128i$

9) $(-4 + 2i)^2$

$12 - 16i$

Challenge problems: complete any two and write in standard form.

10) $-6 - (-2 - 2i) - (5 - 4i)$

$-9 + 6i$

11) $-4(-7 + 8i)(-5 + 6i)$

$52 + 328i$

12) $(-5 + 5i) - (4 - 2i) + (-8 - 7i)^2$

$6 + 119i$

13) $(-4 - 6i) - (-7 - i) + (-5 - 4i)(8 + 4i)$

$-21 - 57i$

Rationalize the denominator to find the quotient.

14) $\frac{3i}{-3 + i} \frac{-9i + 3}{10}$

15) $\frac{10i}{-6 + i} \frac{-60i + 10}{37}$

16) $\frac{5}{6 - 2i} \frac{3 + i}{4}$

Simplify.

17) $\frac{-7 - 3i}{2 + 6i} \frac{-8 + 9i}{10}$

18) $\frac{4 + i}{8 - 7i} \frac{25 + 36i}{113}$

19) $\frac{7 - 7i}{7 - 5i} \frac{42 - 7i}{37}$

20) $\frac{-10 - 2i}{-8 + 6i} \frac{17 + 19i}{25}$