

Operations with Complex Numbers

Simplify.

1) $i + 6i$

$7i$

2) $3 + 4 + 6i$

$7 + 6i$

3) $3i + i$

$4i$

4) $-8i - 7i$

$-15i$

5) $-1 - 8i - 4 - i$

$-5 - 9i$

6) $7 + i + 4 + 4$

$15 + i$

7) $-3 + 6i - (-5 - 3i) - 8i$

$2 + i$

8) $3 + 3i + 8 - 2i - 7$

$4 + i$

9) $4i(-2 - 8i)$

$32 - 8i$

10) $5i \cdot -i$

5

11) $5i \cdot i \cdot -2i$

$10i$

12) $-4i \cdot 5i$

20

13) $(-2 - i)(4 + i)$

$-7 - 6i$

14) $(7 - 6i)(-8 + 3i)$

$-38 + 69i$

15) $7i \cdot 3i(-8 - 6i)$

$168 + 126i$

16) $(4 - 5i)(4 + i)$

$21 - 16i$

17) $(2 - 4i)(-6 + 4i)$

$4 + 32i$

18) $(-3 + 2i)(-6 - 8i)$

$34 + 12i$

19) $(8 - 6i)(-4 - 4i)$

$-56 - 8i$

20) $(1 - 7i)^2$

$-48 - 14i$

21) $6(-7 + 6i)(-4 + 2i)$

$96 - 228i$

22) $(-2 - 2i)(-4 - 3i)(7 + 8i)$

$-98 + 114i$

23) $5i + 7i \cdot i$

$-7 + 5i$

24) $(6i)^3$

$-216i$

25) $6i \cdot -4i + 8$

32

26) $-6(4 - 6i)$

$-24 + 36i$

27) $(8 - 3i)^2$

$55 - 48i$

28) $3 + 7i - 3i - 4$

$-1 + 4i$

29) $-3i \cdot 6i - 3(-7 + 6i)$

$39 - 18i$

30) $-6i(8 - 6i)(-8 - 8i)$

$-96 + 672i$

Critical thinking questions:

31) How are the following problems different?

Simplify: $(2 + x)(3 - 2x)$

Simplify: $(2 + i)(3 - 2i)$

 $i^2 = -1$ so it leads to a few more steps

32) How are the following problems different?

Simplify: $2 + x - (3 - 2x)$

Simplify: $2 + i - (3 - 2i)$

There is no difference.