SM2 3.4B Complex Numbers

Perform the indicated operation and write the result in standard form.

1) $(2 + 4i) + (4 - i)$
   $6 + 3i$

2) $(-3 - 5i) + (4 - 2i)$
   $1 - 7i$

3) $(7 + 9i) + (-5i)$
   $7 + 4i$

4) $6 - (8 + 3i)$
   $-2 - 3i$

5) $(12 + 5i) - (2 - i)$
   $10 + 6i$

6) $(-6 - 7i) - (1 + 3i)$
   $-7 - 10i$

7) $(-2i)(5i)$
   10

8) $(4 - 3i)(5 + 2i)$
   $26 - 7i$

9) $(8 + i)(2 + 7i)$
   $9 + 58i$

10) $(-6 - 5i)(1 + 3i)$
    $9 - 23i$

11) $(-6i)^2$
    -36

12) $(9 + 4i)^2$
    $65 + 72i$

13) $\sqrt{-6} \cdot \sqrt{-2}$
    $-2\sqrt{3}$

14) $\left(\sqrt{-10}\right)^2$
    -10

Solve each equation by taking square roots.

15) $x^2 = -25$
    $x = \pm 5i$

16) $a^2 = -72$
    $a = \pm 6i\sqrt{2}$

17) $3x^2 - 1 = 8$
    $x = \pm\sqrt{3}$

18) $(m + 1)^2 = -4$
    $m = -1 \pm 2i$

19) $(y - 2)^2 = -3$
    $y = 2 \pm i\sqrt{3}$

20) $-2n^2 = 40$
    $n = \pm 2i\sqrt{5}$