

2.4a p. 133 (7-49) odd

$$\textcircled{7} a+bi = -9+4i \quad \begin{array}{l} a = -9 \\ b = 4 \end{array}$$

$$\textcircled{9} 3a + (b+3)i = 9+8i \quad \begin{array}{l} 3a = 9 \\ a = 3 \end{array} \quad \begin{array}{l} b+3 = 8 \\ b = 5 \end{array}$$

$$\textcircled{11} 4 + \sqrt{-9} \\ = 4 + \sqrt{9(-1)} \\ = 4 + 3i$$

$$\textcircled{13} 12 + 0i \\ = 12$$

$$\textcircled{15} -8i - i^2 \\ = -8i - (-1) \\ = -8i + 1 \\ = 1 - 8i$$

$$\textcircled{17} (\sqrt{-16})^2 + 5 \\ = -16 + 5 \\ = -11$$

$$\textcircled{19} \sqrt{-0.09} \\ = \sqrt{(0.09)(-1)} \\ = .3i$$

$$\textcircled{21} (4+i) - (7-2i) \\ = 4+i-7+2i \\ = -3+3i$$

$$\textcircled{23} (-1+8i) + (8-5i) \\ = -1+8i+8-5i \\ = 7+3i$$

$$\textcircled{25} 13i - (14-7i) \\ = 13i - 14 + 7i \\ = -14 + 20i$$

$$\textcircled{27} \left(\frac{3}{2} + \frac{5}{2}i\right) + \left(\frac{5}{3} + \frac{11}{3}i\right) \\ = \frac{3}{2} + \frac{5}{3} + \frac{5}{2}i + \frac{11}{3}i \\ = \frac{9}{6} + \frac{10}{6} + \frac{15}{6}i + \frac{22}{6}i \\ = \frac{19}{6} + \frac{37}{6}i$$

$$\textcircled{29} (1.6+3.2i) + (-5.8+4.3i) \\ = -4.2 + 7.5i$$

$$\textcircled{31} 4(3+5i) \\ = 12+20i$$

$$\textcircled{33} (1+i)(3-2i) \\ = 3-2i+3i-2i^2 \\ = 3+i-2(-1) \\ = 3+i+2 \\ = 5+i$$

$$\textcircled{35} 4i(8+5i) \\ = 32i+20i^2 \\ = 32i+20(-1) \\ = 32i-20 \\ = -20+32i$$

$$\textcircled{37} (\sqrt{14} + \sqrt{10}i)(\sqrt{14} - \sqrt{10}i) \\ = 14 - \sqrt{140}i + \sqrt{140}i - 10i^2 \\ = 14 - 10(-1) \\ = 14+10 = 24$$

$$\textcircled{39} (6+7i)^2 \\ = (6+7i)(6+7i) \\ = 36 + 42i + 42i + 49i^2 \\ = 36 + 84i + 49(-1) \\ = -13 + 84i$$

$$\begin{aligned}
(41.) \quad & (4+5i)^2 - (4-5i)^2 \\
&= (4+5i)(4+5i) - [(4-5i)(4-5i)] \\
&= 16 + 20i + 20i + 25i^2 - [16 - 20i - 20i + 25i^2] \\
&= 16 + 40i - 25 - [16 - 40i - 25] \\
&= -9 + 40i - [-9 - 40i] \\
&= -9 + 40i + 9 + 40i \\
&= 80i
\end{aligned}$$

$$\begin{aligned}
(43.) \quad & 6-2i \text{ conjugate } 6+2i \\
& (6-2i)(6+2i) \\
&= 36 - 12i + 12i - 4i^2 \\
&= 36 + 4 \\
&= 40
\end{aligned}$$

$$\begin{aligned}
(45.) \quad & -1 + \sqrt{7}i \text{ conjugate } -1 - \sqrt{7}i \\
& (-1 + \sqrt{7}i)(-1 - \sqrt{7}i) \\
&= 1 + \sqrt{7}i - \sqrt{7}i - 7i^2 \\
&= 1 + 7 \\
&= 8
\end{aligned}$$

$$\begin{aligned}
(47.) \quad & \sqrt{-29} = 0 + \sqrt{29}i \text{ conjugate } 0 - \sqrt{29}i \\
& \text{or } -\sqrt{29}i \\
& (\sqrt{29}i)(-\sqrt{29}i) \\
&= -29i^2 \\
&= -29(-1) \\
&= 29
\end{aligned}$$

$$\begin{aligned}
(49.) \quad & 9 - \sqrt{6}i \text{ conjugate } 9 + \sqrt{6}i \\
& (9 - \sqrt{6}i)(9 + \sqrt{6}i) \\
&= 81 + 9\sqrt{6}i - 9\sqrt{6}i - 6i^2 \\
&= 81 - 6(-1) \\
&= 81 + 6 \\
&= 87
\end{aligned}$$