

14) $\sqrt{25} + \sqrt{36}$

$i\sqrt{25}$

$i \cdot 5$

\downarrow
 6

$5i + 6$

form

$$6 + 5i$$

14)

$$-2\sqrt{81}$$

$$-2i\sqrt{81}$$

$$\downarrow \sqrt{81} = 9$$

$$-2i \cdot 9$$

$$-2 \cdot i \cdot 9$$

$$-18i$$

why?

$$x^2 + 5 = 0$$

$$\sqrt{x^2} = \sqrt{-5}$$

$$x = \pm \sqrt{-5}$$

undefined

$$x = \pm i\sqrt{5} \quad \text{non-re}$$

imaginary

$$i = \sqrt{-1}$$

$$\begin{array}{c} \sqrt{-5} \\ \swarrow \quad \searrow \\ \sqrt{-1} \cdot \sqrt{5} \\ i\sqrt{5} \end{array}$$

13)

$$2\sqrt{-81}$$

$$2 \cdot i\sqrt{81}$$

$$2 \cdot i \cdot 9$$

$$18i$$

$$\sqrt{16} = 2\sqrt{64}$$

$$4 - 2i\sqrt{64}$$

$$4 - 2i \cdot 8$$

$$4 - 16i$$

$$\begin{aligned} & -3\sqrt{-98} \\ & -3i\sqrt{49}\sqrt{2} \\ & -3i \cdot 7 \cdot \sqrt{2} \\ & -21i\sqrt{2} \end{aligned}$$

$$\begin{aligned} & 2\sqrt{25} - 3\sqrt{025} \\ & 2 \cdot 5 - 3 \cdot i \cdot 5 \\ & 10 - 15i \end{aligned}$$

$$\begin{array}{r}
 3\sqrt{-72} + 5\sqrt{48} - 3\sqrt{-24} + 7\sqrt{-81} \\
 \begin{array}{l}
 3i\sqrt{72} \\
 \sqrt{36} \cdot \sqrt{2} \\
 3i \cdot 6\sqrt{2}
 \end{array}
 \quad
 \begin{array}{l}
 5\sqrt{48} \\
 \sqrt{16} \cdot \sqrt{3} \\
 5 \cdot 4 \cdot \sqrt{3}
 \end{array}
 \quad
 \begin{array}{l}
 -3\sqrt{-24} \\
 3 \cdot i \cdot \sqrt{4} \cdot \sqrt{6} \\
 3 \cdot i \cdot 2\sqrt{6}
 \end{array}
 \quad
 \begin{array}{l}
 +7\sqrt{-81} \\
 7 \cdot i \cdot 9
 \end{array} \\
 18i\sqrt{2} + 20\sqrt{3} - 6i\sqrt{6} + 63i
 \end{array}$$

$$i^2 = -1$$

$$(i+2)(i+4)$$

$$i^2 + 4i + 2i + 8$$

$$i^2 + 6i + 8$$

$$-1 + 6i + 8$$

$$7 + 6i$$

$$(i)^2 = (-1)$$

$$i^2 = -1$$

$$i^3 = i^2 \cdot i$$

$$= -1 \cdot i$$

$$= -i$$

$$i^4 = i^2 \cdot i^2$$

$$= -1 \cdot -1$$

$$= 1$$

$$i^5 = i^2 \cdot i^2 \cdot i$$

$$= -1 \cdot -1 \cdot i$$

$$= i$$