

15. Multiply: $(7+6i)(7-6i)$

$$49 - 36i^2$$

$$i^2 = -1$$

$$49 + 36$$

$$85 \leftarrow \text{real number}$$

$$a + bi$$

$$85 + 0i$$

Divide:

$$16. \frac{x^4 + 625}{x - 5} \Rightarrow 1x^4 + 0x^3 + 0x^2 + 0x + 625$$

$$\begin{array}{r|rrrrr} 5 & 1 & 0 & 0 & 0 & 625 \end{array}$$

$$\begin{array}{r} \downarrow 5 \quad 25 \quad 125 \quad 625 \\ \hline 1 \quad 5 \quad 25 \quad 125 \quad \textcircled{1250} \end{array}$$

$$= x^3 + 5x^2 + 25x + 125 + \frac{1250}{x-5}$$

Simplify:

$$17. \frac{x^2 + 15x + 54}{x^2 + 18x + 81}$$

$$= \frac{(x+6)(x+9)}{(x+9)(x+9)} \quad \text{Reduce}$$

$$= \frac{x+6}{x+9}$$