

9/16

Divide

$$a. (x^4 + x^3 - 8x^2 + 5x + 5) \div (x^2 + 5x - 2)$$

$$\begin{array}{r} x^2 - 4x + 14 \\ x^2 + 5x - 2 \overline{) x^4 + x^3 - 8x^2 + 5x + 5} \\ \underline{-x^4 + 5x^3 + 2x^2} \\ -4x^3 - 6x^2 + 5x \\ \underline{+4x^3 + 20x^2 + 8x} \\ 14x^2 - 3x + 5 \\ \underline{-14x^2 + 70x + 28} \\ -73x + 33 \end{array}$$

$$\boxed{x^2 - 4x + 14 + \frac{-73x + 33}{x^2 + 5x - 2}}$$

$$b. (4x^3 + 27x^2 + 3x + 64) \div (x + 7)$$

$$\begin{array}{r} 7 \overline{) 4 27 3 64} \\ \downarrow 28 7 -70 \\ 4 -1 10 -6 \end{array}$$

$$x - r$$

$$f(-7) = -6$$

$$4x^2 - x + 10 + \frac{-6}{x+7}$$

$$f(x) = 4x^3 + 27x^2 + 3x + 64$$

$$f(-7) = 4(-7)^3 + 27(-7) + 3(-7) + 64 \checkmark$$

Rules of Exponents (2.1)

Product of Powers $a^m \cdot a^n = a^{m+n}$

$$\text{Ex: } x^4 \cdot x^3 = x^{4+3} = x^7$$

$$x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x = x^7$$

Power of a Power $(a^m)^n = a^{mn}$ High in the sky, side by side, multiply

$$\text{Ex: } (x^3)^4 = x^{12}$$

$$x^3 \cdot x^3 \cdot x^3 \cdot x^3$$

$$xxxx xxxxxx xxxxxx xxxxxx = x^{12}$$

Power of a Product $(ab)^m = a^m b^m$

$$\text{Ex: } (6^1 x^1 y^2)^3 \rightarrow 6^3 x^3 (y^2)^3$$

$$6^3 x^3 y^6 = 216 x^3 y^6$$

6,

P. 124 (12-18)
even