

Grace

1.3

$x^3 - x^2 + 2x + 4$ divide $x - 2$

$$\begin{array}{r} x^3 - x^2 + 2x + 4 \\ \underline{-2} \end{array}$$

$$\begin{array}{r} x^3 - x^2 + 2x + 4 \\ \underline{x(-x^2) + x \cdot 2x + 4 + x(-2)} \\ x^4 - x^3 + 2x^2 - 2x + 4 \end{array}$$

$$\begin{array}{r} x^4 - x^3 + 2x^2 - 2x + 4 \\ \underline{x} \end{array}$$

$3x^3 + 2x^2 - x + 3$ divide by $x - 3$

$$\begin{array}{r} 3x^3 + 2x^2 - x + 3 \\ \underline{-3} \end{array}$$

$$\begin{array}{r} 3x^3 + 2x^2 - x + 3 \\ \underline{x \cdot 3x^3 + x \cdot 2x^2 + x(-x) + 3 + x(-3)} \\ 3x^4 + 2x^3 - x^2 - 3x + 3 \end{array}$$

$$\begin{array}{r} 3x^4 + 2x^3 - x^2 - 3x + 3 \\ \underline{x} \end{array}$$

$$x^5 - 4x^2 + x + 3 + 3$$

$$\begin{array}{r} x^5 - 4x^2 + x + 3 + 3 \\ \underline{x^5 + x(-4)x^2 + x \cdot x + 3 + x \cdot 3} \end{array}$$

$$\begin{array}{r} x^6 + x(-4)x^2 + x \cdot x + 3 + x \cdot 3 \\ \underline{x} \end{array}$$

$$\begin{array}{r} x^6 - 4x^3 + x^2 + 3x + 3 \\ \underline{x} \end{array}$$

11. $4x^6 - 3x^4 + x^2 + 5$ is divided by $x-1$

$$4x^6 - 3x^4 + x^2 + 5 - 1$$

$$\begin{array}{r} x \cdot 4x^6 + x(-3)x^4 + x \cdot x^2 + 5 + x(-1) \\ \hline \end{array}$$

$$4x^7 - 3x^5 + x^3 - x + 5$$

12. $x^5 - 1$ is divided by $x-1$

$$x^5 + \frac{-1}{x-1} - 1 = x^5 + 1 - 1 + x(-1)$$

$$x^6 - x - 1$$

$$4x^3 - 3x^2 - 8x + 4; x-2$$

$$4x^3 - 3x^2 - 8x + 4 - 2$$

$$4x^3 - 3x^2 - 4x - 2$$

$$3x^4 - 6x^3 - 5x + 10; x-2$$

$$3x^4 - 6x^3 - 5x + 10 - 2$$

$$\begin{array}{r} x \cdot 3x^4 + x(-6)x^3 + x(-5)x + 10 + x(-2) \\ \hline \end{array}$$

$$3x^5 - 6x^4 - 5x^2 + 2x + 10$$

$$\frac{3x^6 - 82x^3 + 27 + 3}{x}$$

$$\frac{x \cdot 3x^6 + x(-82)x^3 + 27 + x \cdot 3}{x}$$

$$\frac{3x^7 - 82x^4 + 27 + x \cdot 3}{x}$$

$$\frac{3x^7 - 82x^4 + 27 + 3x}{x}$$

$$4x^6 - 64x^4 + x^2 - 15; x + 4$$

$$\frac{4x^6 - 64x^4 + x^2 - 15 + 4}{x}$$

$$\frac{x \cdot 4x^6 + x(-64)x^4 + x^2 + -15 + x \cdot 4}{x}$$

$$\frac{4x^7 - 64x^5 + x^3 + 4x - 15}{x}$$

$$2x^4 - x^3 + 2x - 1; x - \frac{1}{2}$$

$$\frac{2x^4 - x^3 + 2x - 1}{x - \frac{1}{2}}$$

$$\frac{2x^4 - x^3 + 2x - 1}{1 - \frac{1}{2}}$$

$$\frac{2x^4 - x^3 + 3}{2}$$