

$$h(x) = \sqrt{3x^2 - 4} \quad g(x) = x^2 + 4$$

$$h(g(x)) = \sqrt{3(x^2 + 4)^2 - 4}$$

$$= \sqrt{3(x^2 + 4)(x^2 + 4) - 4}$$

$$= \sqrt{3(x^4 + \underbrace{4x^2 + 4x^2}_{8x^2} + 16) - 4}$$

$$= \sqrt{3(x^4 + 8x^2 + 16) - 4}$$

$$= \sqrt{3x^4 + 24x^2 + 48 - 4}$$

$$\sqrt{3x^4 + 24x^2 + 44}$$

$$g(x) = x^2 + 4 \quad K(x) = \frac{2x+3}{4x-5} \quad p(x) = 6x-5$$

$$K(p[g(x)])$$

$$\begin{aligned} p[g(x)] &= 6(x^2+4) - 5 \\ &= 6x^2 + 24 - 5 \\ &= 6x^2 + 19 \end{aligned}$$

$$K(6x^2+19) = \frac{2(6x^2+19)+3}{4(6x^2+19)-5}$$

$$= \frac{12x^2 + 38 + 3}{24x^2 + 76 - 5}$$

$$= \frac{12x^2 + 41}{24x^2 + 71}$$

POLYNOMIALS + FUNCTION Ops

Skip 2.

$$(2x-1)(3x+4)(x-6)$$

$$(6x^2+8x-3x-4)(x-6)$$

$$(6x^2+5x-4)(x-6)$$

$$= 6x^3 + 5x^2 - 4x - 36x^2 - 30x + 24$$

$$= 6x^3 - 31x^2 - 34x + 24$$

$$\begin{array}{r} 4x^3 - 15x^2 \\ \underline{x^2 + 3x - 1 } \\ 4x^5 - 3x^4 + 0x^3 - 7x^2 + x - 5 \\ - 4x^5 + 12x^4 + 4x^3 \\ \hline -15x^4 + 4x^3 - 7x^2 + x - 5 \end{array}$$

Synthetic Division

$$\begin{array}{r} 2x^4 - 7x + 1 \\ \underline{x+3} \end{array} \rightarrow -3 \left| \begin{array}{cccccc} 2 & 0 & 0 & -7 & 1 \\ + & \downarrow & -6 & 18 & -54 & 183 \\ \hline 2 & -6 & 18 & -61 & 184 \end{array} \right.$$

$$2x^3 - 6x^2 + 18x - 61 + \frac{184}{x+3}$$

$$5x^3 + 1080$$

$$5(x^3 + 216)$$

$$5(\overbrace{x+6}^{6^3})(x^2 - 6x + 36)$$

$$x^2 - 14x + 45$$

$$(x-9)(x-5)$$

$$54x - 96x^3$$

$$6x(9 - 16x^2)$$

$$6x(3+4x)(3-4x)$$

$$(2x^3 + 3x^2) - 80x - 75$$

$$1) x^2(2x+3) - 25(2x+3)$$

$$2) (2x+3)(x^2 - 25)$$

$$(2x+3)(x+5)(x-5)$$

