

1.18 Operations w/ Polynomials

Evaluate for $x = -3$
*Evaluate $f(-3)$



$$-x^2 - 3x + 2$$

$$-(\underline{-3})^2 - 3(-3) + 2$$

$$-9 + 9 + 2$$

$$\boxed{2}$$

$$\begin{array}{r|rr} x & \underline{\hspace{2cm}} \\ -3 & \underline{\hspace{2cm}} \\ \end{array}$$

Evaluate for $x = 4$
Evaluate $f(4)$



$$f(x) = x^3 - x^2 - x + 5$$

$$\begin{aligned} f(4) &= (4)^3 - (4)^2 - (4) + 5 \\ &= 64 - 16 - 4 + 5 \end{aligned}$$

$$f(4) = 49$$



Find the sum:

$$(6x^3 + 3x^2 - 7) + (8 - 2x - 6x^2 + 2x^3)$$

$$6x^3 + 3x^2 - 7 + 8 - 2x - 6x^2 + 2x^3$$

$$8x^3 - 3x^2 - 2x + 1$$

Standard form
highest degree to
lowest degree

Collect
like
terms

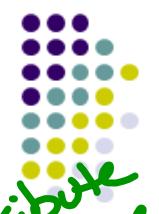
Cubic w/ 4 terms

Find the difference:

$$(8x^3 - 4x^2 + 5x - 1) - (3 - 3x + 2x^2 + 2x^3)$$

$$8x^3 - 4x^2 + 5x - 1 - 3 + 3x - 2x^2 - 2x^3$$

$$\boxed{6x^3 - 6x^2 + 8x - 4}$$



Distribute
the negative

Collect
like terms

Find the product:

$$(2x^2 - 5x + 2)(3x^2 - 2x + 10)$$

$$\begin{array}{r} 6x^4 - 4x^3 + 20x^2 \\ -15x^3 + 10x^2 - 50x \\ \hline 6x^2 - 4x + 20 \end{array}$$

$$\underline{6x^4 - 19x^3 + 36x^2 - 54x + 20}$$

Quartic w/ 5 terms