

Review Topics

5.1 → props of exp

$$\hookrightarrow a^m \cdot a^n = a^{m+n}$$

5.2 → Polynomial

↳ Id; Reg, type, Leading Coeff.

↳ direct sub. / synth. sub.

↳ graphing (chart)

5.3 → add/subtract/mult. polynomials.

Evaluate the expression.

$$2^{2-3} = 2^{-1} = \boxed{\frac{1}{2}}$$

$$(3^2)^{-2} = 3^{2 \cdot -2} = 3^{-4} = \frac{1}{3^4} = \boxed{\frac{1}{81}}$$

$$\left(\frac{2^0}{3^{-1}}\right)^4 = \frac{2^0}{3^{-4}} = 2^0 \cdot 3^4 = 1 \cdot 81 = \boxed{81}$$

Simplify the expression.

$$(a^{-1}b^3)^{-4} = \frac{a^{4}}{b^{12}}$$

$$(x^2y^5)(x^{-4}y^1) = x^{2-4}y^{5+1} = \frac{y^6}{x^2}$$

$$\frac{4m^2n^{-3}}{16m^2n^{-4}} = \frac{1}{4} \frac{n^{-3-(-4)}}{1} = \boxed{\frac{n}{4}}$$

Use direct substitution.

$$f(x) = x^4 - 3x^3 + x^2 - 5x + 8; x = 2$$

$$f(2) = (2)^4 - 3(2)^3 + (2)^2 - 5(2) + 8$$

$$16 - 24 + 4 - 10 + 8$$

$$\boxed{-6}$$

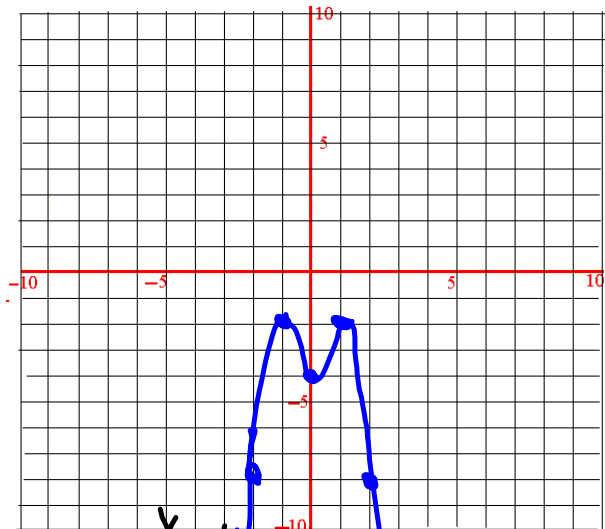
Use synthetic substitution.

$$g(x) = 2x^4 - 3x^2 - x + 10; x = 3$$

$$\begin{array}{r|rrrrr}
 3 & 2 & 0 & -3 & -1 & 10 \\
 & \downarrow & \uparrow & \uparrow & \uparrow & \uparrow \\
 & 2 & 6 & 18 & 45 & 132 \\
 \hline
 & & 2 & 6 & 15 & 44 & \boxed{142}
 \end{array}$$

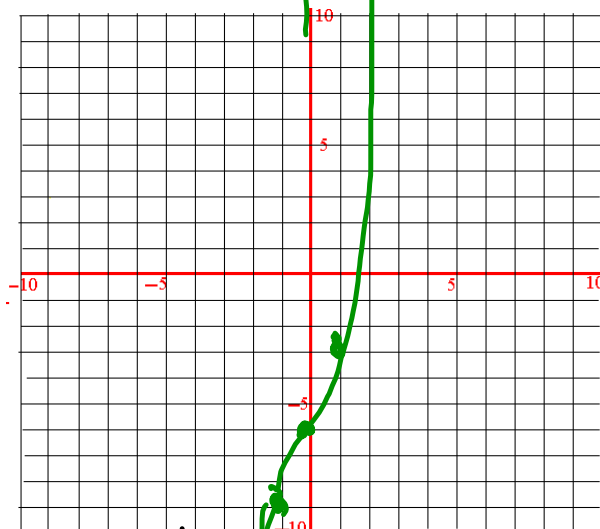
Graph the polynomial function.

$$g(x) = -x^4 + 3x^2 - 4$$



x	y
-3	58
-2	0
-1	-3
0	-4
1	-3
2	0
3	58

$$f(x) = 2x^3 + x - 6$$



x	y
-3	60
-2	24
-1	9
0	-6
1	7
2	32
3	60

Perform the indicated operation.

$$(3x^2 - 4x + 10) + (x^2 - 8x - 1)$$

$$3x^2 - 4x + 10 + x^2 - 8x - 1$$

$$4x^2 - 12x + 9$$

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

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

$$4x^3 - x^2 + 3x + 7$$

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

$$2x^3 - 5x^2 - 2x - 8x^2 + 20x + 8$$

$$2x^3 - 13x^2 + 18x + 8$$

$$(3x - 1)(x + 2)(x - 5)$$

$$(3x^2 + 6x - x - 2)(x - 5)$$

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

$$3x^3 - 15x^2 + 5x^2 - 25x - 2x + 10$$

$$3x^3 - 10x^2 - 27x + 10$$