

Algebra 1

Dividing Polynomials;
Synthetic Division



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Polyester Synthetic Fabrics

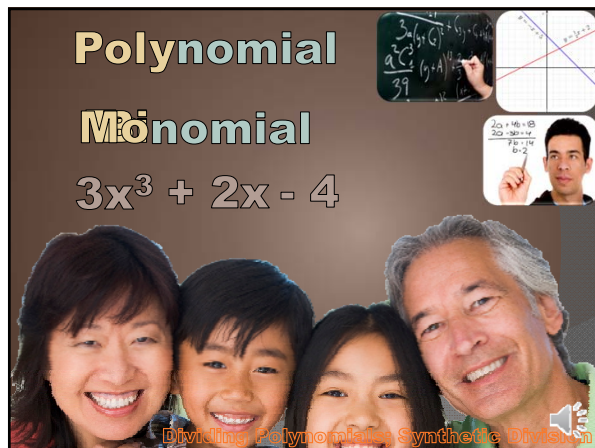
Overview 



Dividing Polynomials Synthetic Fabrics

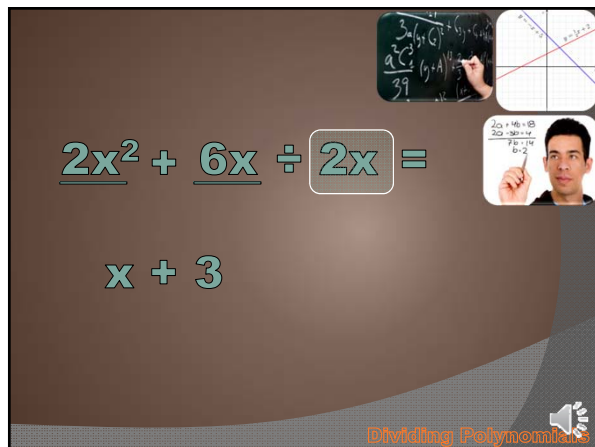
Overview 

Polynomial Monomial

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


Dividing Polynomials: Synthetic Division

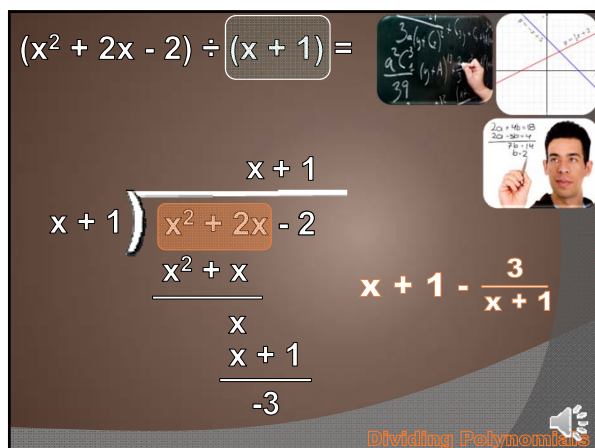
$$\underline{2x^2} + \underline{6x} \div \boxed{2x} =$$

$$x + 3$$


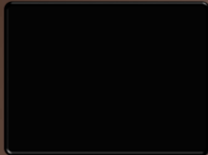
Dividing Polynomials

$$(x^2 + 2x - 2) \div (x + 1) =$$

$$\begin{array}{r} x + 1 \\ x + 1 \overline{) x^2 + 2x - 2} \\ \underline{x^2 + x} \\ x \\ \underline{x + 1} \\ -3 \end{array}$$

$$x + 1 - \frac{3}{x + 1}$$


Dividing Polynomials






$$(a^2 - 5a + 3) \div (a - 1) =$$

You Try it!





$$\begin{array}{r} a - 4 \\ a - 1 \overline{) a^2 - 5a + 3} \\ \underline{a^2 - a} \\ -4a + 3 \\ \underline{-4a + 4} \\ -1 \end{array}$$

$$a - 4 + \frac{-1}{a - 1} \quad a - 4 - \frac{1}{a - 1}$$

$$(a^2 - 5a + 3) \div (a - 1) =$$

You Try it!




$$\begin{array}{r} 2m + 1 \\ 2m - 1 \overline{) 4m^2 + 10m + 13} \\ \underline{4m^2 - 2m} \\ 2m + 13 \\ \underline{2m - 1} \\ 14 \end{array}$$

$$(13 + 4m^2) \div (-1 + 2m) =$$

$$2m + 1 + \frac{14}{2m - 1}$$

Dividing Polynomials

$(3x + 2x^2) \div (5 + x) =$



You Try it

$(3x + 2x^2) \div (5 + x) =$

$$\begin{array}{r} 2x - 7 \\ x + 5 \overline{) 2x^2 + 3x + 0} \\ \underline{2x^2 + 10x} \\ -7x + 0 \\ \underline{-7x - 35} \\ 35 \end{array}$$

$2x - 7 + \frac{35}{x + 5}$

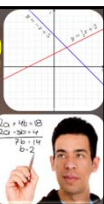


You Try it

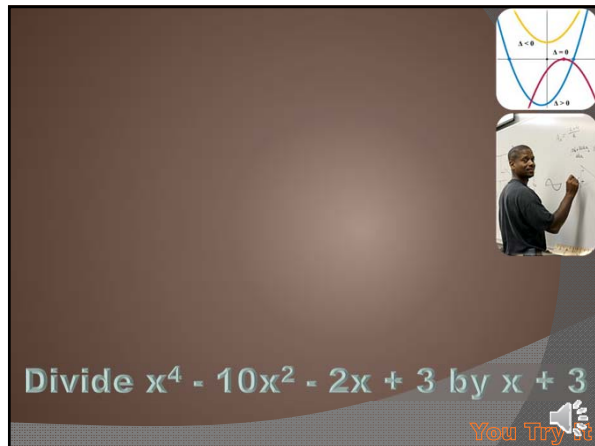
$(x^3 + 3x^2 - 4x - 9) \div (x - 2)$

	1	3	-4	-9
2				
	1	5	6	3

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

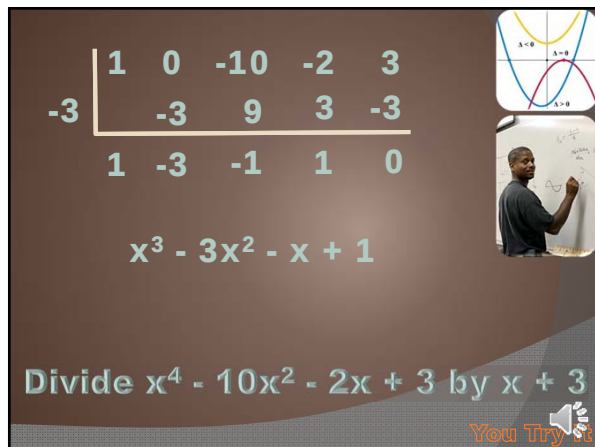


Synthetic Division



Divide $x^4 - 10x^2 - 2x + 3$ by $x + 3$

You Try It!

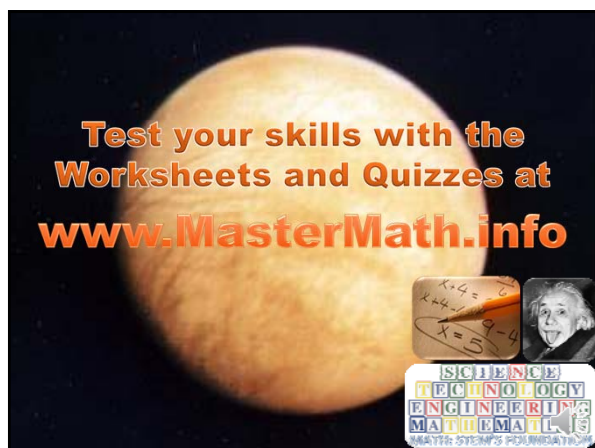


$$\begin{array}{r} 1 \quad 0 \quad -10 \quad -2 \quad 3 \\ -3 \overline{) } \\ 1 \quad -3 \quad -1 \quad 1 \quad 0 \end{array}$$

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

Divide $x^4 - 10x^2 - 2x + 3$ by $x + 3$

You Try It!



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