Mar. 19, 2018

Sect. 6-7a

Polynomial Division

Monomial

Long

Monomial

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

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

$$\frac{3x^3 - 7x^2 + 2x}{x}$$

$$\frac{3 \cdot x \cdot x \cdot x}{x} - \frac{7 \cdot x \cdot x}{x} + \frac{2 \cdot x}{x}$$

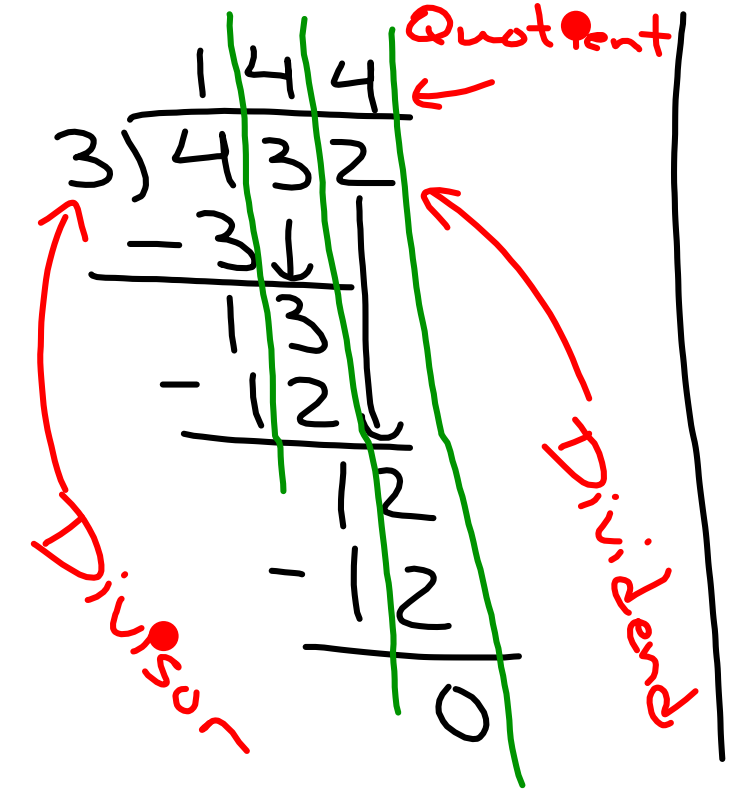
$$3x^2 - 7x + 2$$

$$\frac{5a^6 + 6a^4 - 7a^3}{a^2}$$

$$\frac{5aaaaaa}{aa}$$

$$5a^4 + 6a^2 - 7a$$

Long Division



$(x^2+5x+6) \div (x+2) = x+3$

$\frac{x}{x} \cdot x = x$

$\frac{3}{x} \cdot x = 3$

$$
\begin{array}{r|l}
 & x+3 \\
\hline
x+2 & x^2+5x+6 \\
 & -(x^2+2x) \\
\hline
 & 3x+6 \\
 & -(3x+6) \\
\hline
 & 0
\end{array}
$$

$(3x^3 - 7x^2 + 9x - 14) \div (x - 2)$

$$
\begin{array}{r|l}
 & 3x^2 - 1x + 7 \\
\hline
x - 2 & 3x^3 - 7x^2 + 9x - 14 \\
 & -(3x^3 - 6x^2) \\
\hline
 & -1x^2 + 9x \\
 & -(-1x^2 + 2x) \\
\hline
 & 7x - 14 \\
 & -(7x - 14) \\
\hline
 & 0
\end{array}
$$

$\frac{3x \cdot x}{x} = 3x^2$

$\frac{-1x \cdot x}{x} = -1x$

$\frac{7x}{x} = 7$

$(x^2 - x - 6) \div (x + 2)$

$$x + 2 \overline{)\, x^2 - x - 6}$$

$\frac{x^2}{x} = x$

$$x + 2 \overline{)\, x^2 - x - 6} \quad x$$

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

$\frac{-3x}{x} = -3$

$$x + 2 \overline{)\, x^2 - x - 6} \quad x - 3$$

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

$$-3x - 6$$

$$-(-3x - 6)$$

$$0$$

$(2x^3 + 2x^2 - 7) \div (x + 3)$

$$2x^2 - 4x + 12 + \frac{-43}{x+3}$$

$$x+3 \overline{)\, 2x^3 + 2x^2 + 0x - 7}$$

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

$$-4x^2 + 0x$$

$$-(-4x^2 - 12x)$$

$$12x - 7$$

$$-(12x + 36)$$

$$-43$$

$\frac{2xxx}{x} = 2x^2$

$\frac{-4xx}{x} = -4x$

$\frac{12x}{x} = 12$

$(3x^4+2x^2-1) \div (x-2)$

$$x-2 \overline{)\, 3x^4+0x^3+2x^2+0x-1}$$

$$= 3x^3+6x^2+14x+28+\frac{55}{x-2}$$

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

$$6x^3+2x^2$$

$$-(6x^3-12x^2)$$

$$14x^2+0x$$

$$-(14x^2-28x)$$

$$28x-1$$

$$-(28x-56)$$

$$55$$

$\frac{3x\cdot x\cdot x}{x} = 3x^3$

$\frac{6x\cdot x\cdot x}{x} = 6x^2$

$\frac{14x\cdot x}{x} = 14x$

$\frac{28x}{x} = 28$

$(x^3+2x^2-3x+1) \div (x^2-1)$

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

$x^2-1 \;\overline{)\; x^3+2x^2-3x+1}$

$-(x^3 \quad -1x)$

$2x^2-2x+1$

$-(2x^2 \quad -2)$

$-2x+3$

$\frac{x^3}{x^2} = x$

$\frac{2x^2}{x^2} = 2$