

Dividing Whole Numbers and Monomial Division Intro.....#

GOAL:
 Dividing Whole Numbers... without a calculator!
 Dividing a Polynomial by a Monomial

$$\begin{array}{r}
 x+3+\frac{1}{x^2} \\
 x-2 \overline{) x^2+x-5} \\
 \underline{-x^2+2x} \quad \downarrow \\
 3x-5 \\
 \underline{-3x+6} \\
 1
 \end{array}$$

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Divide. State your remainder as a reduced fraction.

$$\begin{array}{r}
 \boxed{49} \\
 5 \overline{) 245} \\
 \underline{-20} \downarrow \\
 45 \\
 \underline{-45} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 \boxed{50\frac{4}{7}} \\
 7 \overline{) 356} \\
 \underline{-35} \downarrow \\
 6 \\
 \underline{-0} \\
 6
 \end{array}$$

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Divide. State your remainder as a reduced fraction.

$$\begin{array}{r}
 \boxed{162} \\
 21 \overline{) 3402} \\
 \underline{-21} \downarrow \\
 130 \\
 \underline{-126} \downarrow \\
 42 \quad \boxed{28\frac{3}{4}} \\
 \underline{-42} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 \boxed{109\frac{3}{16}} \\
 16 \overline{) 1747} \\
 \underline{-16} \downarrow \\
 14 \\
 \underline{-0} \downarrow \\
 147 \\
 \underline{-144} \\
 3
 \end{array}$$

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Intro to dividing a polynomial by a monomial:

$$\frac{(8x^3 - 4x^2 + 25) \div 5x}{\frac{8x^3}{5x} \quad \frac{-4x^2}{5x} \quad \frac{25}{5x}} \rightarrow 5x \overline{) 5x^3 \dots}$$

$$\boxed{x^2 - \frac{4x}{5} + \frac{5}{x}}$$

$$\frac{(14y^6 - 3y^4 + 6y - 1) \div 7y^2}{\frac{14y^6}{7y^2} \quad \frac{-3y^4}{7y^2} \quad \frac{6y}{7y^2} \quad \frac{-1}{7y^2}}$$

$$\boxed{2y^4 - \frac{3y}{7} + \frac{6}{7y} - \frac{1}{7y^2}}$$

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Why are we practicing long division with numbers...

GREAT QUESTION!
 We want to be able to do long division with polynomials!

Just watch:

$$\begin{array}{r}
 \boxed{x+1} \\
 x+3 \overline{) x^2+4x+3} \\
 \underline{-x^2+3x} \quad \downarrow \\
 x+3 \\
 \underline{-x+3} \\
 0
 \end{array}$$

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One more long division with numbers...

$$7 \overline{) 2151}$$

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	Assignment:
	Division of Whole Numbers Worksheet

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