Math 9 Date: Name:

3.7 Polynomials – Division By a Constant **Pg 142-145**

Reminder- **Polynomial** = an expression that is

Dividing = splitting into **equal groups**.

Example: Draw We are splitting **6** of something into **3** groups of _____

Part 1: How would we solve division with a polynomial and a constant?

Example 1 $9x \div 3$

To **divide** a polynomial by a constant, we must do the **opposite of multiplication**

Step 1: Arrange **9** "x" tiles in **3** rows, where each row has the **same number of tiles**:

Step 2: Count the number of tiles in each row Each row contains _____ x tiles.

Note:
We could also arrange 9 x tiles in groups of 3 and count the groups!

Step 3: Therefore $9x \div 3 =$ _____

Example 2

$8x^2 \div 2$

To **divide** a polynomial by a constant, we must do the **opposite of multiplication**

Step 1:

Step 2: Count the number of tiles in each row Each row contains _____ x tiles.

Step 3: Therefore $8x \div 2 =$ _____

Alternate method: We can also use division as a fraction to determine the quotient

$$9x \div 3$$

$$= \frac{9x}{3} = \frac{9}{3}x = \_\_\_\_\_x$$

Practice Using Either Method

(16m) ÷ 2

(-6m) ÷ 3

Dividing a Binomial and a Trinomial by a Constant **Remember *Bi* = _____ *Tri* = _____**

Example 3: Determine the quotient of $\frac{6x^2-9}{3}$

Method 1: Algebra Tiles

Arrange ____ x^2 tiles and ____ -1 tiles in 3 equal rows.

How many x^2 tiles in each row? _____ How many -1 tiles in each row? _____

Therefore,

Method 2: Write the quotient expression as the **sum** of **two fractions:**

$$\frac{6x^2-9}{3}$$

$$= \frac{6x^2}{3} + \frac{-9}{3}$$

$$= \frac{6}{3}x^2 + \frac{-9}{3}$$

Simplify each fraction : ($\frac{6}{3}$) x^2 + (-3) = _____

Practice: $\frac{8x^2-4x+6}{2}$

Ex. $\frac{-3m^2+15mn-21n^2}{-3}$

Either… Reverse Multiplication OR Write as the sum of three fractions

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Practice: pg 146- 149 Basic –-3a,c; 6b, 8ab Challenging: 14