Dividing Polynomials Using Algebra Tiles

Reporting Category Expressions and Operations

Topic Dividing polynomials

Primary SOL A.2b The student will perform operations on polynomials, including adding, subtracting, multiplying, and dividing polynomials.

Materials
- Algebra tiles
- Teacher Resource for Dividing Polynomials (attached)
- Dividing Polynomials Using Algebra Tiles activity sheet (attached)

Vocabulary

divisor, dividend (earlier grades)

monomial, binomial, trinomial, polynomial, term, degree, base, exponent, coefficient (A.2)

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Demonstrate dividing polynomials using algebra tiles and the attached Teacher Resource for Dividing Polynomials.

2. Distribute algebra tiles and copies of the Dividing Polynomials Using Algebra Tiles activity sheet. Instruct students to model each expression with the tiles, draw the model, simplify the expression, and write the simplified answer.

Assessment
- **Questions**
  - Draw a model of the division of a trinomial with a binomial. Simplify your expression. Did your expression simplify easily? Did you need to make changes? What changes did you need to make to your original expression?
  - How can you explain why $x^2 \div x = x$?
- **Journal/Writing Prompts**
  - One of your classmates was absent when we practiced dividing polynomials using algebra tiles. Write a paragraph explaining this procedure.
  - Describe how to divide polynomials without using algebra tiles.

Strategies for Differentiation
- Encourage the use of algebra tiles, drawings, and mathematical notation simultaneously to reinforce the concepts in this lesson.
- Have students use colored pencils for drawing algebra tile models.
- Have students use interactive white boards or student slates on which to create expressions.

Teacher Resource for Dividing Polynomials

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- Use tiles and frame to represent the problem. The dividend should form an array inside the frame. The divisor will form one of the dimensions (one side) of the frame.
- Be prepared to use zero pairs in the dividend.

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$$\frac{x^2 + 7x + 6}{x + 1}$$

Answer: $x + 6$

Dividing Polynomials Using Algebra Tiles
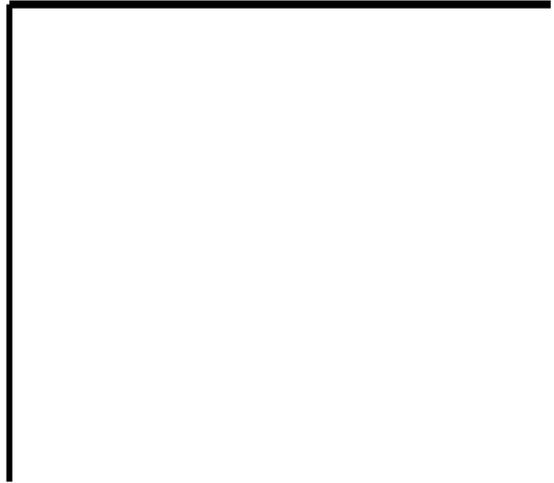
Name _____ **Date**_____

Use algebra tiles to model each division problem and find the quotient. Draw your model in the frame. Write your simplified answer in the space provided.

1. $\dfrac{x^2 + 7x + 6}{x + 1}$

2. $\dfrac{2x^2 + 5x - 3}{x + 3}$

Answer:_____

Answer:_____

3. $\dfrac{x^2 - x - 2}{x - 3}$

4. $\dfrac{x^2 + x - 6}{3x}$

Answer:_____

Answer:_____