7.1 Multiplying and Dividing Monomials

Explore Multiplying and Dividing Monomials

The following notes provide guidelines to help you adapt the Explore Multiplying and Dividing Monomials section from *MathLinks 9*.

- Read the introduction aloud. You may wish to do this exercise as a teacher-led activity.
- Review the terms *monomial expression*, *relationship*, *inscribed*, *ratio*, *product*, and *quotient*.
- If you choose not to do this exercise as a teacher-led activity, have students work in pairs.
- Discuss the importance of using π versus 3.14.

Examples

- Explain that *calculate*, *find the product*, *find the quotient*, and *simplify* all mean to find the answer in simplest form. Post these words in the classroom.
- Use the Warm Up to review the exponent laws before proceeding with the examples.
- Review and post the value of each algebra tile. Use **Master 11 Algebra Tiles (Positive Tiles)** and **Master 12 Algebra Tiles (Negative Tiles)** for students to cut out tiles to use at school and at home. Alternatively, cut out algebra tiles using different colours of paper to make it easier for students to assign the appropriate values. Provide students with a three-hole punched plastic sleeve to store their tiles.

Working Example 1:

- Distribute **BLM 7–2 Algebra Tile Frames**.
- Use the concept of the area of a rectangle to emphasize the importance of creating a rectangle or square of algebra tiles under the frame. Each monomial represents a dimension.

Working Example 3:

- Show how to divide a monomial by expanding the numerator and denominator so students can see common factors more easily. For example, $10x^2 = 2 \times 5 \times x \times x$.
- Review the rules of dividing and multiplying by negative numbers. Post them as a reminder for students.
- Review the names of the parts of a fraction (numerator and denominator).
- Remind students that a number written in fraction form is another way of writing division: $\frac{12x}{2} = 12x \div 2$. Thus, the denominator is often called the *divisor* when calculating the quotient.

Working Example 4:

- Review how to rewrite equations.

Communicate the Ideas, Practise, and Apply

- Students may benefit from using algebra tiles and **BLM 7–2 Algebra Tile Frames** to create the answers to #4 and #8a) before drawing them.
- Provide students who need additional practice with **BLM 7–3 Section 7.1 Extra Practice**.

Common Errors

- Students may have difficulty creating the quotient when using algebra tiles.

R$_x$ Remind students that the outside of the frame is only created using x-tiles, y-tiles, and 1-tiles. The dividend (tiles under the frame) can be made using all tiles.

R$_x$ Review the rules for multiplying by a negative: two negative x-tiles make a positive x^2-tile. Remind students to apply exponent laws ($x^1 \times x^1 = x^2$).