Date: _____

7.3 Dividing Polynomials by Monomials

***MathLinks 9*, pages 272–277**

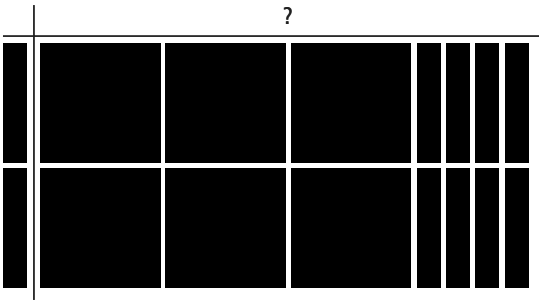
Key Ideas Review

Use the following terms to complete #1 to 3. Terms can be used more than once.

dividend divisor numerical coefficients product quotient variables

1. To divide a polynomial by a monomial algebraically, you can divide the _____ _____ and apply the exponent rules to the _____. To check your work, multiply the _____ by the _____. If the _____ equals the _____, your answer is correct.

2. Consider the model. Then, complete the sentences below.



In the model, the six x^2-tiles and eight x-tiles represent the _____. If the divisor is $2x$, the unknown side is the _____. To find the quotient, count the number of tiles along the top row of the _____.

3. The expression represented by the model in #2 is _____. The quotient is _____.

4. In the boxes, write the correct values for the following equation and its check.

Divide:

$$\frac{4x^2 - 6x}{2x} = \frac{\square}{2x} - \frac{\square}{2x}$$
$$= 2x - 3$$

Check by Multiplication:

$$(2x)(2x - 3) = (2x)(\square) - (2x)(\square)$$
$$= 4x^2 - 6x$$

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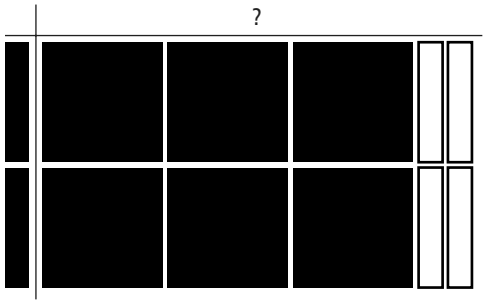
Check Your Understanding

5. Sketch the solution for the unknown value. What is the unknown value?



6. Use a model to divide the expression.

$(-8x^2 + 12x) \div (-4x)$

7. Divide.

a) $\frac{-36y^2 + 10.8y}{6y}$

b) $\frac{4s^2 - 8st + 12s}{-8s}$

c) $-(8.1d^2 - 7.2d + 3.6) \div (9)$

d) $(-y^2 - yz - y) \div (-y)$

8. A load of topsoil has a volume of 7.5 m^3. You wish to spread the topsoil over an area measuring $(30x + 22.5)$ m^2. Create an expression for the depth of the topsoil.

9. A triangle has a base of $(3x + 6)$ cm and a height of $24x$ mm. Write an expression you can use to calculate the area of the triangle. What is its area?

10. The formula for the volume of a cylinder is $V = \pi r^2 h$. The volume of a cylinder is $510.5t^2$ cm^3, and its height is 6.5 cm. Calculate the approximate radius of the cylinder.

11. The surface area of a cylinder is represented by the formula $SA = A_1 + A_2$, where $A_1 = 2\pi r^2$ and $A_2 = 2\pi rh$. The surface area of a cylinder is 90π m^2 and $A_1 = 50\pi$ m^2. Answer the following, showing your work.

a) What is A_2? Do not change π to an approximate value.

b) What is the radius of the cylinder?

c) What is the height of the cylinder?