

Sections 5.6

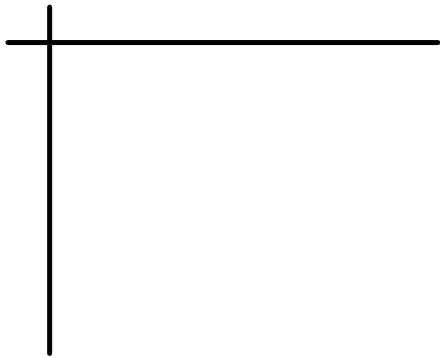
Multiplying and Dividing Polynomials by a Monomial

You will be expected to divide polynomials:

- symbolically
- using area model
- using algebra tiles.

Example 1: $3x(2x)$

Use Algebra Tiles



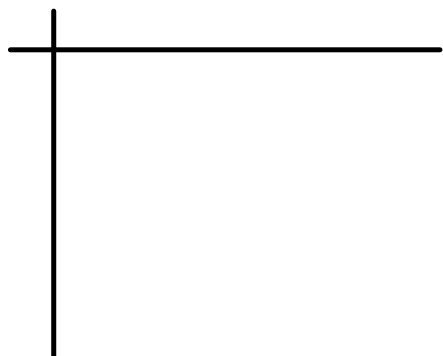
Use an Area Model

Use Algebra

Remember the
exponent rule:
 $a^n \times a^m = a^{n+m}$

Example 2: $3x(2x + 2)$

Use Algebra Tiles



Use an Area Model

Use Algebra

Example 3: Multiply using algebra tiles.

(a) $x(2x + 1)$

(b) $-2x(-x - 3)$

Example 4: Multiply using the distributive property.

(a) $5y(y + 1)$

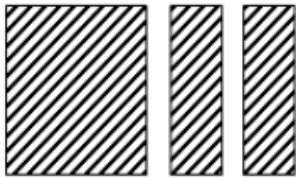
(b) $6x(12 - x)$

(c) $-4x(2x - 3)$

(d) $-6m(m + 4)$

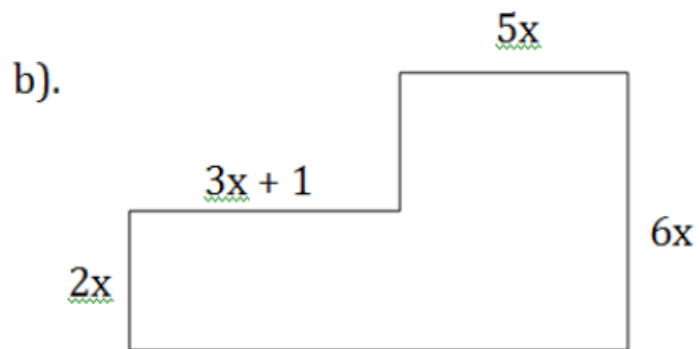
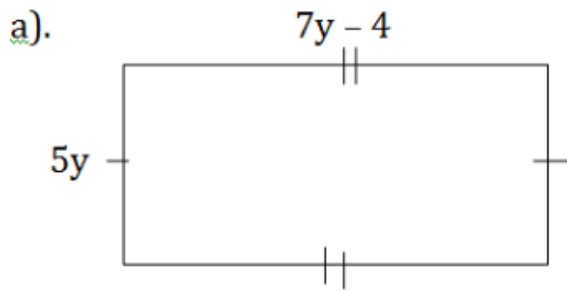
Example 5: Find the area of each rectangle.

a)



b) Length = $2x$
Width = $3x$

Example 6: Write a simplified expression for the area of each shape.



When dividing by a term containing a variable → think about the denominator as being the width of the tiles, the numerator is the area and now find the missing length.

Example 7:

$$\frac{4x^2}{2x}$$

Area Model	Algebra Tiles

Example 8:

$$\frac{4x^2 - 8x}{2x}$$

Area Model	Algebra Tiles

Example 9: Divide symbolically

a). $\frac{4x^2}{2x}$

Divide the numbers.
For the variable,
remember the exponent rule for dividing.

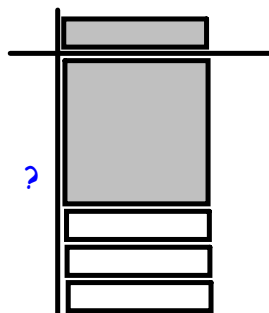
b). $\frac{4x^2 - 8x}{2x}$

Rewrite as two fractions. Divide both
monomials. Don't forget the exponent
rule with the variables.

NOTE:

However many terms are in the numerator, that's how many terms are in your answer. When dividing a trinomial by a monomial, you will have a trinomial answer.

Example 10: Divide symbolically. What is the division sentence?



Example 11:

Identify the error(s) in the solution and write the correct solution.

$$\begin{aligned}(12x^2 - 4x) \div (-2x) \\ &= \frac{12x^2}{-2x} - \frac{4x}{-2x} \\ &= -6x - 2 \\ &= -8x\end{aligned}$$

Example 12:

Draw a rectangle with an area of $36a^2 + 12a$. How many different dimensions are possible for this rectangle?

Example 13: Simplify

(a) $\frac{-15xy}{3x}$

(b) $\frac{-8y^2 + 24y}{4y}$

(c) $\frac{30x^2 - 18xy}{-6x}$

Work Book Questions

p.255 - 257 #4ab, 5ab, 6, 7b, 8b,
11abcdefgh, 12aceg, 14, 16abcg, 19abc
20abc, 21ace, 22, 25

Extra Practice Questions

p.255-257 #4c, 5c, 7a, 8a, 9, 10,
12bdfh, 13, 16defh, 20def, 21bd