Name _____ Class _____ Date _____

Reteaching 11-1

Simplifying Rational Expressions

OBJECTIVE: Simplifying rational expressions **MATERIALS:** None

Example

Simplify $\frac{3x + 6}{2x + 4}$.

$3x + 6 = 3(x + 2)$ ← **Factor the numerator.**

$2x + 4 = 2(x + 2)$ ← **Factor the denominator.**

$= \frac{3(x + 2)}{2(x + 2)}$ ← **Rewrite the expression in terms of the factors.**

$= \frac{3(\cancel{x + 2})}{2(\cancel{x + 2})}$ ← **Mark through common factors in the numerator and denominator. These two factors cancel because any number divided by itself equals 1.**

$= \frac{3}{2}$ ← **Simplify.**

Example

Simplify $\frac{4x - 24}{x^2 - 9x + 18}$.

$4x - 24 = 4(x - 6)$ ← **Factor the numerator.**

$x^2 - 9x + 18 = (x - 6)(x - 3)$ ← **Factor the denominator.**

$= \frac{4(x - 6)}{(x - 6)(x - 3)}$ ← **Rewrite the expression in terms of the factors.**

$= \frac{4(\cancel{x - 6})}{(\cancel{x - 6})(x - 3)}$ ← **Mark through common factors in the numerator and denominator. These two factors cancel because any number divided by itself is 1.**

$= \frac{4}{x - 3}$ ← **Simplify.**

Exercises

Simplify each expression.

1. $\frac{5x - 15}{3x - 9}$

2. $\frac{x + 7}{2x + 14}$

3. $\frac{2x - 2}{x - 1}$

4. $\frac{5x - 20}{x^2 - 16}$

5. $\frac{x^2 - 6x - 16}{x^2 - x - 6}$

6. $\frac{6x^2 + 3x}{2x^2 + 11x + 5}$

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