

Honors Algebra II

Notes Section 5.6

Solve Rational Expressions

EXAMPLE 1 Solve.

$$\text{a) } \frac{3}{5x} = \frac{2}{x-7}$$

$$\text{b) } \frac{3}{x+1} = \frac{9}{4x+5}$$

EXAMPLE 2 An alloy is formed by mixing two or more metals. Sterling silver is an alloy composed of 92.5% silver and 7.5% copper by weight. Jewelry silver is composed of 80% silver and 20% copper by weight. How much pure silver should you mix with 15 ounces of jewelry silver to make sterling silver?

EXAMPLE 3 Solve.

$$\text{a) } \frac{5}{x} + \frac{7}{4} = \frac{-9}{x}$$

$$\text{b) } \frac{3}{2} + \frac{4}{x-1} = \frac{x+1}{x-1}$$

$$c) 1 - \frac{8}{x-5} = \frac{3}{x}$$

EXAMPLE 4 Solve.

$$a) \frac{6}{x-3} = \frac{8x^2}{x^2-9} - \frac{4x}{x+3}$$

$$b) \frac{5x}{x-2} = 7 + \frac{10}{x-2}$$

EXAMPLE 5 From 1995 through 2003, the annual sales S (in billions of \$) of entertainment software can be modeled by

$$S(t) = \frac{848t^2 + 3220}{115t^2 + 1000}$$

where t is the number of years since 1995. For which year were the total sales of entertainment software about \$5.3 billion?