Bell Ringer - Solve the linear system.

A business rents in-line skates and bicycles to tourists on vacation. A pair of skates rents for $15 per day. A bicycle rents for $20 per day. On Monday, the owner of the business has 25 rentals and takes in $450. Write and solve a system of equations to find the number of each item rented.

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x = # of skates

y = # of bikes

$$15x + 20y = 450$$

$$x + y = 25$$

1) Isolate a variable $x = 25 - y$

2) Substitute $15(25 - y) + 20y = 450$

3) Solve $15(25-y)+20y=450$

$375-15y+20y=450$

$375+5y=450$

$5y=75$

$y=15$

4) Find the other variable by substitution

$x+15=25$

$x=10$

Solution: 10 pairs of in-line skate rentals and 15 bicycle rentals.

Chapter 11-5 Multiplying Rational Expression Notes

Things to consider:

- look to simplify by canceling
- remember to use the integer and exponent rules
- may have to factor out a variable, number, or an expression (parentheses)
- multiply numerators together then denominators together

Simplify

1. $\frac{7n^5}{5n^2} \cdot \frac{10n^3}{14n}$

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$\frac{n^8}{n^3} = n^5$

division: subtract exponents

Simplify

2. $\frac{3x}{8x^2} \cdot \frac{4x^3}{3x^4}$

Simplify

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$\frac{\cancel{3}^{1}x}{\cancel{8}^{2}x^2} \cdot \frac{\cancel{4}^{1}x^3}{\cancel{3}^{1}x^4}$

$\frac{x^4}{2x^6} = \frac{1}{2x^2}$

Simplify

3. $\dfrac{8x}{x^2 + 4x + 4} \cdot \dfrac{x + 2}{2x^3}$

Simplify

3. $\dfrac{8x}{x^2 + 4x + 4} \cdot \dfrac{x + 2}{2x^3}$

Factor

$$\frac{8x}{(x+2)(x+2)} \cdot \frac{x+2}{2x^3}$$

$$\frac{4x}{x^3(x+2)} = \frac{4}{x^2(x+2)}$$

Simplify

4. $\dfrac{3x}{x^2 - 2x - 24} \cdot \dfrac{x - 6}{6x^2 + 9x}$

Simplify

4. $\dfrac{3x}{x^2 - 2x - 24} \cdot \dfrac{x - 6}{6x^2 + 9x}$

Factor

Factor

$$\frac{3x}{(x-6)(x+4)} \cdot \frac{x-6}{3x(2x+3)} = \frac{1}{(x+4)(2x+3)}$$

Simplify

5. $\frac{6x^2 + 7x - 33}{x + 4} \cdot \frac{1}{6x - 11}$

Simplify

5. $\dfrac{6x^2 + 7x - 33}{x + 4} \cdot \dfrac{1}{6x - 11}$

Factor with box method

$AC = -198$

Factors of -198: $-2, 99$; $-3, 66$; $-6, 33$; $-9, 22$; $-11, 18$

	$\times$ 3
$6x$	$6x^2$ | $18x$
-11	$-11x$ | -33

$$\frac{(x+3)(6x-11)}{x+4} \cdot \frac{1}{6x-11}$$

$$\frac{x+3}{x+4}$$