Simplify without a calculator. $\frac{36}{27} \cdot \frac{15}{16}$

you could cross cancel first

reduce $\frac{9}{9}$ to 1

$\frac{36^{\div 9}}{27_{\div 3}} \cdot \frac{15^{\div 3}}{16_{\div 4}}$

$\frac{9}{9} \cdot \frac{5}{4}$

$1 \cdot \frac{5}{4} = \boxed{5/4}$

Sec 9-4 Simplifying the Product or Quotient of Rational Expressions

- Factor all numerators and denominators.
- If mulitplying you can simplify within the same fraction and/or cross cancel. Finish by multiplying numerators and multiplying denominators so that you can write the answer as a single fraction.
- Instead of dividing, multiply by the reciprocal then simplify as you would when multiplying.
- State restrictions on the variable.

Simplify. State restrictions on the variables.

$\frac{x^2-49}{x^2-9x+14} \cdot \frac{x^2-2x}{4x^3+28x^2}$ ← (+14, −7, −2, −9)

$\frac{(x+7)(x-7)}{(x-7)(x-2)} \cdot \frac{x(x-2)}{4x^2(x+7)}$

$= \boxed{\frac{1}{4x} \quad x \neq \pm 7, 0, 2}$

Simplify. State restrictions on the variables.

$\frac{x^2-16}{9x^2+18x} \div \frac{x^2-3x-4}{3x^2+6x}$ → (−4, +1, −4, −3)

$\frac{(x+4)(x-4)}{9x(x+2)} \div \frac{(x-4)(x+1)}{3x(x+2)}$

$\frac{(x+4)(x-4)}{9x(x+2)} \cdot \frac{3x(x+2)}{(x-4)(x+1)} = \boxed{\frac{x+4}{3(x+1)} \quad x \neq 0, -2, 4, -1}$

Simplify. State restrictions on the variables.

$$\frac{48x^2-12x}{x^2-3x-18}\cdot\frac{x^2-12x+36}{32x^2-2}$$

-18: $-6, +3$; -3 ← $x^2-3x-18$

$+36$: $-6, -6$; -12 → $x^2-12x+36$

→ $2(16x^2-1)$

$$\frac{12x(4x-1)}{(x-6)(x+3)}\cdot\frac{(x-6)(x-6)}{2(4x+1)(4x-1)}$$

$$=\frac{6x(x-6)}{(x+3)(4x+1)} \qquad x\neq 6,-3,\pm\frac{1}{4}$$

You can now finish :

Hwk #7 Sec 9-4

Pages 511

Problems 6, 10, 11, 16, 17

You are also ready for Quiz #2: Sec 9-2 to 9-4

Quiz will be Monday