

Quiz 10-2: Rational Expressions (All Operations & Applications)

Simplify each expression. Box final answers.

1. $\frac{3x^5y}{5x^3y^2}$

$\frac{1x^2}{5y}$

2. $\frac{a^2 - b^2}{7a - 7b}$ $\frac{(a+b)(a-b)}{7(a-b)}$ $\frac{a+b}{7}$
p. Square

Perform the indicated operation. Write each answer in simplest form. Box final answers.

3. $\frac{6m^2n^3}{2m^5} \cdot \frac{9mn^6}{12m^2n}$

$\frac{9 \cancel{27}}{6} \cdot 3$

4. $\frac{2x^2 - 6x}{x^2 + 6x - 27} \cdot \frac{x^2 + 14x + 45}{x^3 + 5x^2}$
 $\frac{2x(x-3)}{(x+9)(x-3)} \cdot \frac{(x+9)(x+5)}{x^2(x+5)}$
 $\frac{2}{x}$

5. $\frac{4}{15w^3} \cdot \frac{12}{25w}$

6. $\frac{4k - 8}{10k^2 + 5k} \div \frac{8k + 24}{2k^2 + 7k + 3}$

7. $\frac{7x}{24} + \frac{3x}{24}$

8. $\frac{4y + 21}{y^2 - 81} - \frac{y + 6}{y^2 - 81}$
common denom. ✓
 $\frac{3y + 27}{(y^2 - 81)} = \frac{3(y+9)}{(y+9)(y-9)}$
 $\frac{3}{y-9}$

9. $\frac{p^2 - 5p}{p^2 - 10p - 24} + \frac{3p - 8}{p^2 - 10p - 24}$

10. $\frac{11}{18h} + \frac{5}{6h}$

get common denom.

11. $\frac{4(3z)}{4(z+3)} \cdot \frac{2z-30}{4(z+3)}$

$\frac{12z - 2z + 30}{4(z+3)} = \frac{10z + 30}{4(z+3)} = \frac{10(z+3)}{4(z+3)} = \frac{10}{4} = \frac{5}{2}$

$\frac{x^2 + 11x - 10}{5x^2 + 6x - 8} = \frac{(x+1)(x-10)}{(5x-4)(x+2)}$

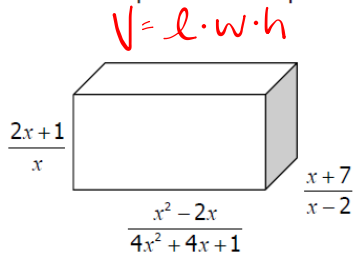
$\frac{-2(5x-4)}{x+2(5x-4)}$

$\frac{x^2 + 11x - 10}{(5x-4)(x+2)} = \frac{(x+1)(x-10)}{(5x-4)(x+2)}$

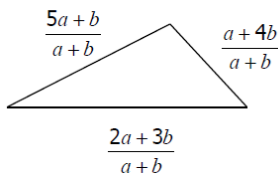
$\frac{-2(5x-4)}{(x+2)(5x-4)}$

$\frac{-2}{x+2}$

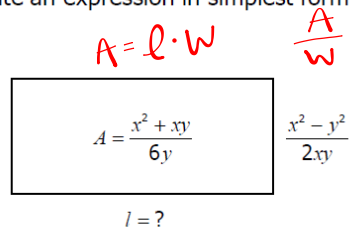
13. Write an expression to represent the **volume** of the rectangular prism in simplest form.



14. Write an expression to represent the **perimeter** of the triangle in simplest form.



15. Write an expression in simplest form for the **length** of the triangle given its area and width.



BONUS: Simplify the expression below completely.

$\frac{10x+4}{96x^4+24x^2} \div \frac{10x^2-x-2}{48x^5-3x}$