

1. Simplify each expression. Be sure your answers do not contain negative or zero exponents.

~~\*~~ a.  $x^8 x^{12}$   
 $x^{8+12}$   
 $x^{20}$

b.  $(2d^4)^3$   
 $(2d^4)(2d^4)(2d^4)$   
 $8d^{12}$

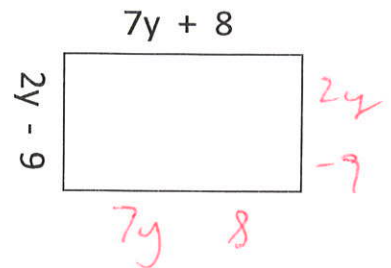
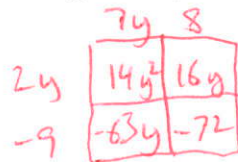
c.  $\frac{x^4 y^7}{x y^9}$   
 $x^{4-1} y^{7-9}$   
 $x^3 y^{-2}$   
 $\frac{x^3}{y^2}$

d.  $\frac{k^{-8}}{h^{-3}}$  ~~9~~  $\frac{h^3}{k^8}$

~~\*~~ 2. A rectangular room has a width of  $2y - 9$  and length of  $7y + 8$ .

a. Write the area as a **simplified sum**.

$14y^2 - 47y - 72$



b. Write the area as a **product**.

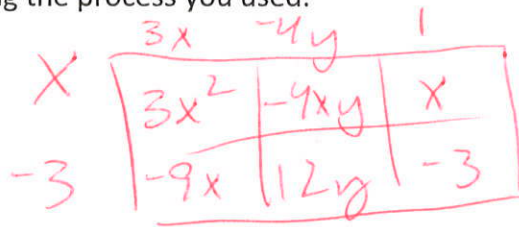
$(2y - 9)(7y + 8)$

c. Write an expression that represents the **perimeter**. Simplify your expression.

$18y - 2$

~~\*~~ 3. Write as a sum showing the process you used.

$(x - 3)(3x - 4y + 1)$



$3x^2 - 8x - 4xy + 12y - 3$

	Mastery (4)	Proficient (3)	Nearly Proficient (2)	Needs Improvement (1)
Simplifying Expressions with Exponents 8.EE.1 A-SSE.2	Student can simplify seven of the eight expressions and correctly state if a simplified expression is equivalent to a given expression.	Student can simplify three of the four expressions and correctly state if a simplified expression is equivalent to a given expression.	Student can simplify two of the four expressions correctly.	Student shows little understanding of simplifying expressions.
Using the Distributive Property A-APR.1	Student correctly multiplies both polynomials. Student writes area as a product and finds the perimeter of the rectangle correctly. Work is clearly organized and easy to follow.	Student correctly multiplies 1 of the polynomials. Student writes area as a product and finds the perimeter of the rectangle correctly.	Student correctly multiplies 1 of the polynomials. Student makes progress toward writing area as a product and finding perimeter of the rectangle, errors may be present.	Student shows little understanding of using the distributive property.

# Equations

solve for x

$$\textcircled{1} \begin{array}{r} x^2 - 12 = 24 \\ +12 \quad +12 \\ \hline x^2 = 36 \end{array}$$

$$(x)(x) = 36$$

$$(\cancel{6})(\cancel{6}) = 36$$

$$(-6)(-6) = 36$$

$$\boxed{\begin{array}{l} x = 6 \\ x = -6 \end{array}}$$

$$\textcircled{2} |x + 4| = 21$$

$$\begin{array}{r} x + 4 = 21 \\ -4 \quad -4 \end{array}$$

$$\begin{array}{r} x + 4 = -21 \\ -4 \quad -4 \end{array}$$

$$\boxed{\begin{array}{l} x = 17 \\ x = -25 \end{array}}$$

$$\textcircled{3} y = \frac{m}{x}$$

$$xy = \frac{xm}{x}$$

$$xy = \frac{1m}{1}$$

$$\frac{xy}{y} = \frac{m}{y}$$

$$x \frac{1}{1} = \frac{m}{y}$$

$$x = \frac{m}{y}$$

$$\textcircled{4} \begin{array}{r} 4y + 2x = 20 \\ -4y \end{array}$$

$$\frac{2x = 20 - 4y}{2 \quad 2}$$

$$\frac{1}{1}x = \frac{20}{2} - \frac{4}{2}y$$

$$\boxed{x = 10 - 2y}$$