

Algebra II

1-2

Simplifying Expressions

Order of Operations

- 1) Grouping Symbols
 - a) parentheses $()$
 - b) brackets $[\]$
 - c) absolute value $||$
 - d) Fraction bar $\frac{\quad}{\quad}$
 - e) radical $\sqrt{\quad}$
- 2) Exponents
- 3) Multiplication or Division
Left to Right
- 4) Addition or Subtraction
Left to Right

Examples:

*1) $24 \div 4(3)$

$$\frac{6(3)}{18}$$

*2) -2^2

$$-4$$

$$0-2^2$$

Formal Definition of Absolute Value

$x \in \mathbb{R}$, $|x| = \begin{cases} x, & \text{if } x \geq 0 \\ -x, & \text{if } x < 0 \end{cases}$

x element of the real number

Use one of the symbols $<$, $=$, or $>$ to make a true statement. (pg 10)

1) $5 \cdot 1 \underline{=} 5 \div 1$
 $5 = 5$

Simplify.

11a) $11 - 3 + 5 - 2$
 $8 + 5 - 2$
 $13 - 2$
 11

11b) $11 - (3 + 5) - 2$
 $11 - 8 - 2$
 $3 - 2$
 1

11c) $11 - (3 + 5 - 2)$
 $11 - (8 - 2)$
 $11 - 6$
 5

Evaluate each expression if $x = 3$, $y = 2$, and $z = 5$.

29) $\frac{4z^3}{x^2 - y^2}$
 $\frac{4(5)^3}{3^2 - 2^2} = \frac{4 \cdot 125}{9 - 4} = \frac{500}{5} = 100$

Evaluate each expression for the given values of the variables.

41) $\frac{3u^2 - 2(v - 3)^2}{2(u^2 - 1) - v^2}$; $u = 4$, $v = 5$

$\frac{3(4)^2 - 2(5 - 3)^2}{2(4^2 - 1) - 5^2}$

$\frac{3 \cdot 16 - 2(2)^2}{2(16 - 1) - 25} = \frac{48 - 2 \cdot 4}{2(15) - 25} = \frac{48 - 8}{30 - 25} = \frac{40}{5}$

8

8
4.4
40
9

pg 10
2-50 even