Algebra I

Lesson 1.2
Apply Order of Operations

Example 1. Evaluate Expressions
Evaluate the expression $6+12\div3\times4^2$.

$6+12\div3\times16$
$6+4\times16$
$6+64$
70

Order of Operations
1. Evaluate expressions inside grouping symbols
2. Evaluate powers
3. Multiply/divide from left to right
4. Add/subtract from left to right

Try It!
(a) $20-4^2$

$20-16$
4

(b) $32\div2^3+6$

$32\div8+6$
$4+6$
10

Example 2. Evaluate Expressions with Grouping Symbols
Evaluate the expression $24\div(4-1)$.

$24\div(3)$
8

Try It!
(a) $48-(6+5^2)$

$48-(6+25)$
$48-(31)$
17

(b) $3[32\div(2+6)]$

$3[32\div(8)]$
$3[4]$
12

Example 3. Evaluate an Algebraic Expression
Evaluate the expression when $x=3$.

$\frac{10x}{2(x+2)}$

$\frac{10(3)}{2(3+2)} = \frac{30}{2(5)} = \frac{30}{10} = 3$

Try It!
Evaluate the expression when $y = 8$

(a) $y^2 - 3$

$(8)^2 - 3$
$64 - 3$
61

(b) $\frac{10y+1}{y+1}$

$\frac{10(8)+1}{(8)+1} = \frac{80+1}{9}$
$\frac{81}{9} = 9$

(c) $[2y+1] - y + 5$

$[2(8)+1] - (8) + 5$
$[16+1] - (8) + 5$
$17 - 8 + 5$
$9 + 5 = 14$

Example 4. Application
John had 4 copies of a science report made to give to his lab partners. In each copied report there were 20 black-and-white pages and 5 color pages. He paid a copy center to make and bind the copes. His cost in dollars is given by the expression $4(5c + 20b)$, where c is the cost of a color page and b is the cost of a black-and-white page. What is the total cost if a color page costs \$2 and a black-and-white page costs \$0.05?

$4(5(2) + 20(0.05))$
$4(10 + 1)$
$4(11)$
44

The total cost for the 4 science reports is \$44

Assignment: Pages 10 – 11 (4 – 28)

Review:
Evaluate the expression for the given value of the variable.

1. $15a \quad a = 7$
2. $.75 + x \quad x = 2.25$
3. $y - 14 \quad y = 32$
4. $\frac{c}{23} \quad c = 391$
5. $\frac{1578}{d} \quad d = 3$
6. $\frac{3}{4} \cdot z \quad z = \frac{2}{3}$

Add or Subtract.

7. $\frac{2}{3} + \frac{1}{2}$
8. $\frac{3}{8} - \frac{1}{3}$
9. $2\frac{2}{3} + \frac{2}{3}$
10. $\frac{1}{4} - \frac{5}{8}$