Order of Operations p.74

It is important to use the order of operations when simplifying expressions. Test writers often design wrong answer choices to catch students who compute in the wrong order. The correct order of operations is shown below.

- First, simplify expression within grouping symbols, such as parenthesis, brackets, absolute-value bars, radicals and fraction bars.
- Next, simplify exponents
- Then, perform multiplication and division from left to right
- Finally, perform all addition and subtraction from left to right

TRY IT OUT

1. $3 \times 2 + 2 - 3 + 8 \times 2$

$6 + 2 - 3 + 16$

21

2. $2 + 3^2 - (10 - 8)$

$2 + 3^2 - (2)$

$2 + 9 - 2$

9

3. $(3 + 2)^2 - 8 \times 2$

$5^2 - 8 \cdot 2$

$25 - 8 \cdot 2$

$25 - 16$

9

4. $|4 - 6| \times 2 + 4^2 - 12 \div 2$

$|-2| \times 2 + 4^2 - 12 \div 2$

$2 \times 2 + 16 - 12 \div 2$

$4 + 16 - 6$

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Substitute and Compute

p.75

Sometimes, a problem will provide an algebraic expression and ask you to evaluate it with a given value. When this occurs all you have to do is substitute and compute

Substitute and Compute
• Rewrite the expression or equation substituting the given value(s) for the variable(s). • Simplify using the order of operations

TRY IT OUT

2. If $m = \left|\frac{1}{x}\right|$ and $n = \frac{1}{y}$, what is the value of m+n when x = -2 and y = -3

(A) -5/6
(B) -1/6
(C) 0
(D) 1/6
(E) 5/6

$m = \left|\frac{1}{-2}\right| = .5 = \frac{1}{2}$

$n = \frac{1}{-3}$

$m + n = \frac{3}{3}\cdot\frac{1}{2} + -\frac{1}{3}\cdot\frac{2}{2}$

$\frac{3}{6} - \frac{2}{6} = 1/6$