Math in Living C O L O R !!

1.02 Order of Operations

Intermediate Algebra: One Step at a Time. Page 14 - 19: #24, 25, 30, 32, 36.

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See Section 1.02 with explanations, examples, and exercises, coming soon!

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24. $6+6^2 \div 3 \bullet 2$

According to the order of operations, since there are NO parentheses here, the next step is to Raise to the Power.

$6+36 \div 3 \bullet 2$

The next step is to Multiply or Divide from Left to Right. This means to divide by 3 first, and then multiply by 2. [NOTE: DO NOT multiply 3•2!!]

$6+36 \div 3 \bullet 2$

$6+12 \bullet 2$

$6+24$

The last step is to add, so the final answer is 30.

25. $\left(16+2^2\right) \div 2 \bullet 2$

Since there ARE parentheses, do what is within Parentheses first! This would be the $2^2 = 4$, and then add 16.

$\left(16+4\right) \div 2 \bullet 2$

$20 \div 2 \bullet 2$

The next step is to Multiply or Divide from Left to Right. This means to divide by 2 first, and then multiply by 2.

$20 \div 2 \bullet 2$

$10 \bullet 2$

Final Answer: 20

30. $24-12\div 2\bullet 3+6\bullet 2^3$

According to the order of operations, since there are NO parentheses here, the next step is to Raise to the Power.

$24-12\div 2\bullet 3+6\bullet 8$

The next step is to Multiply or Divide from Left to Right. Be sure to do the operations from Left to Right. First divide by 2, and then multiply by 3.

NOTE: DO NOT multiply $2\bullet 3$!!

$24-12\div 2\bullet 3+6\bullet 8$

$24-6\bullet 3+6\bullet 8$

$24-18+6\bullet 8$

Multiply $6\bullet 8=48$:

$24-18+48$

Finally subtract, and then add from left to right:

$6+48$

Final Answer: 54

32. $35-20\div 5+7^2\bullet 2-6\bullet 3+9+10\div 2$

Again, since there are NO parentheses here, the next step is to Raise to the Power.

$35-20\div 5+49\bullet 2-6\bullet 3+9+10\div 2$

The next step is to Multiply or Divide from Left to Right. Be sure to do the operations from Left to Right.

$35-20\div 5+49\bullet 2-6\bullet 3+9+10\div 2$

$35-4+49\bullet 2-6\bullet 3+9+10\div 2$

$35-4+49\bullet 2-6\bullet 3+9+10\div 2$

$35-4+98-6\bullet 3+9+10\div 2$

$35-4+98-18+9+10\div 2$

$35-4+98-18+9+5$

Finally, do the addition and subtraction, of course from left to right:

$31+98-18+9+5$

$129-18+9+5$

$111+9+5$

Final Answer: 125

36. $$\frac{(6\div 2\bullet 3)^2+2\bullet 3^2}{(5+2)^2-4\bullet 2^2}+\frac{(20+5)\bullet 2^2}{(20-5\bullet 2)^2}$$

The first step is Parentheses. Since there are sometimes two operations within a set of parentheses, it will take two steps to do this. Remember, within the parentheses, multiply or divide from LEFT to RIGHT!!

$$\frac{(3\bullet 3)^2+2\bullet 3^2}{(7)^2-4\bullet 2^2}+\frac{(25)\bullet 2^2}{(20-10)^2}$$

$$\frac{(9)^2+2\bullet 3^2}{(7)^2-4\bullet 2^2}+\frac{(25)\bullet 2^2}{(10)^2}$$

The next step is to Raise to the Power.

$$\frac{81+2\bullet 9}{49-4\bullet 4}+\frac{(25)\bullet 4}{100}$$

The next step is to Multiply or Divide from Left to Right.

$$\frac{81+18}{49-16}+\frac{100}{100}$$

Finally, do the Addition and Subtraction.

$$\frac{99}{33}+\frac{100}{100}$$

$$3+1$$

Final Answer: **4**