

Notes: T1-02 Order of Operation

Parenthesis – This means do anything contained within a grouping symbol (parenthesis, brackets, division bars, square roots, exponents, absolute value, etc). Follow the order of operations within the grouping symbol

$5^2 \Rightarrow 10$
 $5 \cdot 5$

Exponents – This means evaluate any exponents

$\rightarrow \frac{(5+3)}{4}$

Multiply/Divide – This means do all multiplication and division (from left to right)

$\div + \cdot \div$

Add/Subtract – This means do all addition and subtraction (from left to right)

$+ - - + -$

Simplify completely (You must show at least two steps on each problem. Problems with an expression with a fraction bar must show two steps each for the top and bottom)

1.) $5 \cdot 2 + 9 \cdot 3$
 \checkmark
 $10 + 9 \cdot 3$
 $10 + 27$
 37

2.) $6 \cdot 2 \div (3 \cdot 4) - 1$
 $6 \cdot 2 \div (12) - 1$
 $12 \div 12 - 1$
 $1 - 1$
 0
 $- 1$

3.) $3 + 9 - \left(\frac{15}{-5}\right)$
 $3 + 9 - (-3)$
 $3 + 9 + 3 = 12 + 3 = 15$
 \checkmark
 $12 + 3$
 15

$3(x-5)$

4.) $11 - [3(5-2)]$
 $11 - [3(3)]$
 $11 - [9]$
 2

5.) $4 + 6 + 6 - 4 - 6$
 $10 + 6 - 4 - 6$
 $16 - 4 - 6$
 $12 - 6$
 6

6.) $3 \div 3 + 6^2 + 2$
 $3 \div 3 + 36 + 2$
 $1 + 36 + 2$
 $37 + 2$
 39

7.) $3^3 - 3(8 \div 2)$

$$\begin{aligned} & 3^3 - 3(4) \\ & 27 - 3(4) \\ & 27 - 12 \\ & \textcircled{15} \end{aligned}$$

8.) $\frac{(4-2)+2^{3-2}}{3(4-1)}$

$$\begin{aligned} & \frac{2+2^1}{3(3)} \\ & \textcircled{\frac{4}{9}} \end{aligned}$$

9.) $\frac{10 \div 2 \cdot 3}{18 - 8 - 6}$

$$\begin{aligned} & \frac{5 \cdot 3}{10 - 6} \\ & \textcircled{\frac{15}{4}} \end{aligned}$$

10.) $\frac{2}{5} - \frac{5}{2} + \frac{8}{5}$

$$\begin{aligned} & \frac{4}{10} - \frac{25}{10} + \frac{16}{10} \\ & \frac{-21}{10} + \frac{16}{10} \\ & \frac{-5}{10} = \textcircled{-\frac{1}{2}} \end{aligned}$$

11.) $\frac{2^2(4-8 \div 4)}{2(5-2)}$

$$\begin{aligned} & \frac{2^2(4-2)}{2(3)} \\ & \frac{4(2)}{6} = \frac{8}{6} = \textcircled{\frac{4}{3}} \end{aligned}$$

12.) $\frac{5^2+5}{-(6-3)}$

$$\begin{aligned} & \frac{25+5}{-(3)} \\ & \frac{30}{-3} = \textcircled{-10} \end{aligned}$$

13.) $6 + [(4-2)3] \left(\frac{18}{3}\right)$

$$\begin{aligned} & 6 + [(2)3] + 6 \\ & 6 + [6] + 6 \\ & 12 + 6 \\ & \textcircled{18} \end{aligned}$$

14.) $3(7-6)^2 + 4^2 \div 2$

$$\begin{aligned} & 3(1)^2 + 16 \div 2 \\ & 3(1) + 16 \div 2 \\ & 3 + 16 \div 2 \\ & 3 + 8 \\ & \textcircled{11} \end{aligned}$$

15.) $\frac{(6-4)+9 \div 3^2}{16 \div 4 + 2}$

$$\begin{aligned} & \frac{(2)+9 \div 9}{4+2} \\ & \frac{2+1}{6} = \frac{3}{6} = \textcircled{\frac{1}{2}} \end{aligned}$$