

**Math 7 Unit 3 Study Guide**

Directions: No Calculator! Answer each question completely Show ALL work to defend your answers.

1. Consider this problem:  $(-6) + 9(-2) + 3(3) =$

a. How many terms are in the expression? 3

b. Show your steps and simplify the expression.

$$\begin{aligned}
 & -6 + 9(-2) + 3(3) \text{ PEMDAS} \\
 & -6 + (-18) + 3(3) \\
 & -6 + (-18) + 9 \\
 & \underline{-24 + 9} \\
 & -15
 \end{aligned}$$

-15

2. Compute. Show your work.

a.  $15.12 + 9.4$

$$\begin{array}{r}
 15.12 \\
 + 9.40 \\
 \hline
 24.52
 \end{array}$$

24.52

b.  $18.3 - 7.6$

$$\begin{array}{r}
 18.3 \\
 - 7.6 \\
 \hline
 10.7
 \end{array}$$

10.7

c.  $(1.6)(9.12)$

$$\begin{array}{r}
 16 \times 912 \\
 \hline
 14592
 \end{array}$$

14.592

d.  $(6.5)(2.3)$

60	5	1200
1200	100	100
180	15	180
		+ 15
		<u>1495</u>

14.95

3. Use the order of operations to simplify the following expressions and decide which expression has the greatest value. Circle and label the expression with the greatest value.

a.  $(-36 \div 6) + (42 \div -7)$  PEMDAS

$$\begin{aligned}
 & -6 + (42 \div -7) \\
 & -6 + -6 \\
 & \underline{-12}
 \end{aligned}$$

b.  $8 + 9 \cdot 3$  PEMDAS

$$\begin{aligned}
 & 8 + 27 \\
 & \underline{35}
 \end{aligned}$$

← greatest value

c.  $(3)(-18) + (-67)$  PEMDAS

$$\begin{array}{r}
 54 \\
 67 \\
 \hline
 121
 \end{array}$$

-121

d.  $2(14 - 9) - (17 - 14)$  PEMDAS

$$\begin{aligned}
 & 2(5) - (17 - 14) \\
 & 2(5) - 3 \\
 & 10 - 3 \\
 & \underline{7}
 \end{aligned}$$

4. Select all expressions with a value equivalent to 6 + (-4) = 10

$6 + (-4) = 2$

$6(-4) = -24$

$-(6+4) = -10$

$6+4 = 10$

$-[(-6) + (-4)] = 10$

$-6-4 = -10$

KCC  
 $-6-4 = -10$   
 $-6+(-4) = -10$

5. Mr. Nova is dividing up a  $5\frac{1}{2}$  pound bag of nuts into smaller portions. Show your work in at least two ways.

a. How many  $\frac{1}{4}$  pound bags of nuts can be made from a  $5\frac{1}{2}$  pound bag of nuts?

$5\frac{1}{2}$  lbs  
 $4 \times \frac{1}{4} = 1$  lb  
 $4 \times 5 = 20$  bags = 5 lbs  
 $20 \text{ bags} = 5 \text{ lbs}$   
 $22 \text{ bags} = 5\frac{1}{2} \text{ lbs}$

$\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$   
**22 bags**

Start  
 $5\frac{1}{2} \div \frac{1}{4} = 11\frac{1}{2} \div \frac{1}{4} = 11\frac{1}{2} \cdot \frac{4}{1} = \frac{44}{2} = 22$

b. How many  $\frac{3}{4}$  pound bags of nuts can be made from a  $5\frac{1}{2}$  pound bag of nuts?

$5\frac{1}{2} \div \frac{3}{4} = 11\frac{1}{2} \cdot \frac{4}{3} = \frac{44}{6} = 7\frac{2}{3}$   
**7  $\frac{2}{3}$  bags**

$\frac{3}{4} \times 3 = 6 \text{ bags}$   
 $\frac{1}{4} \times 3 = 3 \text{ bags}$   
 $6 + 3 = 9 \text{ bags}$   
 $9 \text{ bags} = 5\frac{1}{2} \text{ lbs}$

6. Find each product. Show your work and simplify your answer.

a.  $\frac{6}{12} \times \frac{5}{10} = \frac{30}{120} \div \frac{10}{10} = \frac{3}{12} \div \frac{3}{3} = \frac{1}{4}$   
 **$\frac{1}{4}$**

b.  $1\frac{7}{8} \times 1\frac{2}{3} = 3\frac{1}{8}$   
 **$3\frac{1}{8}$**

c.  $5\frac{3}{4} \times 7\frac{2}{3} = 44\frac{1}{12}$   
 **$44\frac{1}{12}$**

d.  $\frac{9}{11} \times \frac{2}{6} = \frac{18}{66} \div \frac{3}{3} = \frac{6}{22} \div \frac{2}{2} = \frac{3}{11}$   
 **$\frac{3}{11}$**

Review & Remember: 7. For each of the following, determine the number that would make the equation true.

true.  $6 \cdot 3 = 18$

a.  $-18 = \underline{6} \cdot (-3)$

b.  $-\underline{28} + 8 = -20$

$- + 8 \neq -20$   
 $-8 \quad | \quad -8$

c.  $\underline{-7} \cdot 6 = -42$

d.  $10 + \underline{-13} = -3$

$10 + \underline{\quad} \neq -3$   
 $-10 \quad | \quad -10$

(6b)

$$1\frac{1}{8} \times 1\frac{2}{3}$$

$$\frac{15}{8} \cdot \frac{5}{3} = \frac{75}{24} = 3\frac{3}{24} \div \frac{3}{3} = 3\frac{1}{8}$$

$$\begin{array}{r} 24 \cdot 1 = 24 \\ 24 \cdot 2 = 48 \\ 24 \cdot 3 = 72 \end{array}$$

$$\frac{48}{24}$$

(6c)

$$7\frac{3}{4} \times 7\frac{1}{2}$$

$$\frac{4}{23} \cdot \frac{3}{23} = \frac{529}{12}$$

$$\begin{array}{r} 23 \\ 69 \\ 469 \\ \hline 529 \end{array}$$

$$\begin{array}{r} 12 \overline{) 44.29} \\ \underline{44} \phantom{.29} \\ \phantom{44} \phantom{.} 29 \\ \phantom{44} \phantom{.} \underline{29} \\ \phantom{44} \phantom{.} \phantom{2} 9 \\ \phantom{44} \phantom{.} \phantom{2} \phantom{9} 12 \cdot 4 = 48 \\ \phantom{44} \phantom{.} \phantom{2} \phantom{9} \phantom{12} \phantom{.} \phantom{9} \\ \phantom{44} \phantom{.} \phantom{2} \phantom{9} \phantom{12} \phantom{.} \phantom{9} \phantom{1} \\ \phantom{44} \phantom{.} \phantom{2} \phantom{9} \phantom{12} \phantom{.} \phantom{9} \phantom{1} \phantom{1} \end{array}$$



$\frac{3}{4}$

$$\begin{array}{r} 7 \text{ bags} = 5\frac{1}{4} \\ \text{have } 5\frac{1}{2} = 5\frac{2}{4} \\ \underline{5\frac{1}{4} - 5\frac{2}{4}} \\ \phantom{5\frac{1}{4} - 5\frac{2}{4}} \frac{1}{4} \end{array}$$