

**Unit One Review: Long Division, Exponents, and Order of Operations***Remember: Partial credit is granted only when work is shown and comprehensible***Section One: Problem Solving**

1. There are a total of 400 sixth graders. If there are 45 lunch tables in the cafeteria, how many students can sit at each lunch table? 9 STUDENTS

2. Sam owns 456 acres of land. He wants to divide his land into 15 sections. How many whole acres will be in each section? 30.4 ACRES

3. Bethany wants a new iPad that cost \$725. She can save \$22 each week. How many weeks of saving does she have left until she will be able to purchase the iPad?

33 WEEKS

**Section Two: Exponential Notation**

4. Find the value of eight cubed. 512

5. What is the value of  $9^0$ ? 1

6. Write  $(0.35)(0.35)(0.35)(0.35)$  in exponential notation.  $(.35)^4$

7. How would I express 49 using exponential notation and a base of 7?  $7^2$

8. Sam's home, valued at \$324,000, will increase in value according to this formula:

$$324,000 \times 1.08 \times 1.08 \times 1.08$$

How would you express this formula using exponential notation?  $324,000 \times 1.08^3$

9. What is the value of  $(\frac{1}{2})^5$ ?  $\frac{1}{32}$

10. Find the value of  $3^5$  243

11. Find the value of  $7^3$  343

12. Write the expanded form of  $w^6 \cdot z^4$   $w \cdot w \cdot w \cdot w \cdot w \cdot w \cdot z \cdot z \cdot z \cdot z$

**Section Three: Order of Operations**

13. What is the value of the following expression? 50

$$33 + (8 - 3)^2 - 5 \cdot 3 + 7$$

4. Evaluate the following expression when  $x = 4$  and  $y = 8$

84

$$x(6y - 3^3)$$

5. Using the correct order of operations, what should you do first?

7 + 3

$$5 \div (7 + 3) + 5 + 6 - 3$$

3. What is the value of the following expression?

71

$$(9 + 5) \div 2 + 8^2$$

7. Where would I place parenthesis in the following problem to make it true?

$$7 * (8 + 2) - 2 = 68$$

8. Using the correct of order of operations, what should you do first?

7 + 2

$$4(7 + 2)^2 + (6 + 2)^2$$

Simplify:  $6 \cdot w \cdot 3 \cdot w^2 \cdot 2 \cdot x \cdot x^2 \cdot w^3$

$36 \cdot w^6 \cdot x^3$

Simplify:  $\frac{24d^3 \cdot e^5}{4d^2 \cdot e^2}$

$6de^3$

1. 
$$\begin{array}{r} 8.8 \\ 45 \overline{) 400} \\ \underline{360} \\ 400 \end{array}$$

$$\begin{array}{r} 4 \\ 45 \\ \times 8 \\ \hline 360 \end{array}$$

$$8.8888 \rightarrow \boxed{9 \text{ STUDENTS}}$$

2. 
$$\begin{array}{r} 30.4 \\ 15 \overline{) 456} \\ \underline{45} \phantom{0} \\ 06 \\ \underline{60} \end{array}$$

$$\boxed{30.4 \text{ ACRES}}$$

3. 
$$\begin{array}{r} 32.9 \\ 22 \overline{) 725} \\ \underline{66} \phantom{0} \\ 65 \\ \underline{44} \\ 210 \end{array}$$

$$'' \boxed{33 \text{ WEEKS}}$$

4. 
$$8^3 = 8 \cdot 8 \cdot 8$$

$$\begin{array}{r} 4 \\ 64 \\ \times 8 \\ \hline 512 \end{array}$$

$$64 \cdot 8 = \boxed{512}$$

9. 
$$\left(\frac{1}{6}\right) \left(\frac{1}{6}\right) \left(\frac{1}{6}\right) \left(\frac{1}{6}\right) \left(\frac{1}{6}\right)$$

$$\begin{array}{r} 3 \\ 36 \\ \times 36 \\ \hline 216 \\ 1080 \\ \hline 1296 \end{array}$$

10) 
$$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$$

$$\begin{array}{r} 3 \\ 81 \\ \times 3 \\ \hline 243 \end{array}$$

$$81 \cdot 3 = \boxed{243}$$

11) 
$$7 \cdot 7 \cdot 7 =$$

$$\begin{array}{r} 7 \\ 49 \\ \times 7 \\ \hline 343 \end{array}$$

$$49 \cdot 7 = \boxed{343}$$

13.  $33 + (8-3)^2 - 5 \cdot 3 + 7$   
 ~~$33 + (5)^2 - 5 \cdot 3 + 7$   
 $33 + 25 - 5 \cdot 3 + 7$   
 $58 - 15 + 7$   
 $53 - 3 + 7$   
 $50 + 7$   
 $57$~~

$33 + (8-3)^2 - 5 \cdot 3 + 7$   
 $33 + (5)^2 - 5 \cdot 3 + 7$   
 $33 + 25 - 5 \cdot 3 + 7$   
 $33 + 25 - 15 + 7$   
 $58 - 15 + 7$   
 $43 + 7$   
 $50$

14.  $4(6(8) - 3^3)$        $3 \times 3 \times 3$   
 $4(48 - 27)$        $9 \times 3 = 27$   
 $4(48 - 27)$   
 $4(21)$   
 $84$

16.  $(9+5) \div 2 + 8^2$   
 $(14) \div 2 + 8^2$   
 $14 \div 2 + 64$   
 $7 + 64 = 71$

17.  $7 \cdot 8 + 2 - 2$        $7 \cdot (8+2) - 2$   
 $56 + 2 - 2$        $7 \cdot (10) - 2$   
 $58 - 2$        $70 - 2$   
 $56$        $68$

19.  $6 \cdot w \cdot 3 \cdot w^2 \cdot 2 \cdot x \cdot x^2 \cdot w^3$   
 $6 \cdot w \cdot 3 \cdot w \cdot w \cdot 2 \cdot x \cdot x \cdot x \cdot w \cdot w \cdot w$   
 $36 \cdot \underline{w} \cdot \underline{w} \cdot \underline{w} \cdot x \cdot x \cdot x \cdot \underline{w} \cdot \underline{w} \cdot \underline{w}$   
 $36 \cdot w^6 \cdot x \cdot x \cdot x$   
 $36 \cdot w^6 \cdot x^3$

$$\begin{array}{r} 18 \\ \times 2 \\ \hline \end{array}$$

20.  $\frac{24d^3 \cdot e^5}{4d^2 \cdot e^2}$        $\frac{24}{4} = 6$

$\frac{6d^3e^5}{d^2e^2} \rightarrow \frac{6d \cdot d \cdot d \cdot e \cdot e \cdot e \cdot e \cdot e}{d \cdot d \cdot e \cdot e}$

$6de^3$

or  $\frac{24d^3e^5}{4d^2e^2}$   
 $\downarrow \quad \downarrow \quad \downarrow$   
 $6 \quad d \quad e^3$

$3-2=1$   
 $5-2=3$