

Unit 1: Exponents, Problem-Solving and Order of Operation Test A

study Guide

KEY

NDC:

1. Two of the expressions have the same value, which expression has a different value?

A. $9^2 = 9 \times 9 = 81$

C. $3^4 = 3 \times 3 \times 3 \times 3 = 81$

B. $6 \times 3 = 18$

2. Evaluate 4^4

$4 \times 4 \times 4 \times 4$
 $\downarrow \quad \downarrow$
 16×16

A. 16

C. 64

B. 48

D. 256

3. Everyday Wylie picks up aluminum cans. On day one he picked up five cans. Each day after that he picked up five times as many can as the day before. Which expression would you use to find the number of cans he picked up on the 7th day?

A. 1^7

C. 7^5

B. 5^7

D. 10^7

Five is the number that repeats (base)

4. What would be the first calculation done in evaluating the following?

$5 + 10 \times 5 \div 4^3$

A. $5 + 10$

C. 10×5

B. $5 \div 4$

D. 4^3

5. What would be the last calculation done in evaluating the following?

$3(6^2 - 4^2) + (647 - 226)^0$

A. +1

C. $\times 3$

B. +421

D. -20

$3(6^2 - 4^2) + (647 - 226)^0$
 $3(36 - 16) + (421)^0$
 $3(20) + 1$
 $60 + 1$

6. Which of these numbers is a result of squaring a whole numbered base?

A. 120

B. 144

$12^2 = 144$

C. 8

D. 72

answer
exponent of 2
 b^2

7. Evaluate the following expression

$$4^3 - 2^5 - (7 + 19)$$

$4^3 - 2^5 - (7 + 19)$

$64 - 32 - (26)$

$64 - 32 - 26$

$32 - 26$

6

8. Evaluate the expression. Show Work

$$(12 - 1) + 6^3 - 10 + 1^9$$

$(12 - 1) + 6^3 - 10 + 1^9$

$11 + 6^3 - 10 + 1^9$

$11 + 216 - 10 + 1$

$227 - 10 + 1$

218

9. Find a base that when raised to any power will always result in the same answer.

0 OR 1

$1^5 = 1$

$1^{100} = 1$

$1^0 = 1$

$1^{219} = 1$

10. Evaluate $(\frac{1}{2})^5$

$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{32}$

11. Where should you place the parentheses in the following expression so that it equals 13?

$2 \times 5 \div 2 + (3 - 1) \times 4$

$2 \times 5 \div 2 + (3 - 1) \times 4$

$(2 \times 5) \div 2 + 2 \times 4$

$10 \div 2 + 2 \times 4$

$5 + 2 \times 4$

14. $2^? = 64$ What exponent would make this a true statement?

$5 + 8$

13

$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

$4 \quad 8 \quad 16 \quad 32 \quad 64$

26

13. Evaluate 10^8 .

100,000,000

14. Write 9^5 in expanded form.

$9 \times 9 \times 9 \times 9 \times 9$

For these problems, you must use the CURE annotation. 5 points per problem.

15. The middle school team scored three field goals worth three points each and two touchdowns worth six points each, with a single extra point for each touchdown. Write a numerical expression to find the team's score. Evaluate the expression.

$$FG \rightarrow 3 \times 3 = 9$$

$$TD \rightarrow 2 \times 6 = 12$$

$$EP \rightarrow 2 \times 1 = 2$$

$$9 + 12 + 2$$

23 points

16. Students at school play a game called "Pass it Around." In this game, one student picks a phrase and tells it to 7 other students. Each of these students then tells 7 more students. The pattern continues. How many students will be told the phrase during round 3?

$$7^3 = 7 \times 7 \times 7$$

$$\begin{array}{c} \checkmark \\ 49 \times 7 \end{array}$$

343 students

17. Little Bo Peep received this message about her lost sheep: *IF YOU EVER WANT TO SEE YOUR SHEEP AGAIN, MEET ME IN FRONT OF OLD MOTHER HUBBARD'S EXACTLY 390 MINUTES FROM RIGHT NOW (1:00 PM Friday)*. On what day and at what time will Little Bo Peep have to be at Old Mother Hubbard's?

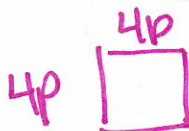
$$\begin{array}{r} 6.5 \\ 60 \overline{) 390.0} \\ \underline{-360.0} \\ 300 \end{array}$$

6 hours
30 minutes

+ 1:00
+ 6:30

7:30 PM

Extra Credit: What is the area of a square with a side length of $4p$?



$$4p \cdot 4p = 16p^2$$