

Name: _____

Powers and Exponents

1) Identify the base and the exponent in the expression 13^5 .2) How are the expressions 3^4 and 4^3 different?**Write the power in words and as a repeated multiplication. Then evaluate the power.**

3) 12^2

4) $(0.3)^3$

5) $(1.2)^3$

6) 5^4

Evaluate the expression when $k = 6$.

7) k^2

8) k^3

9) k^4

10) k^5

11) A gift box has the shape of a cube with an edge length of 14 inches. Find the volume of the box.

Write the product using an exponent.

12) $32 \cdot 32$

13) $11 \cdot 11 \cdot 11$

14) $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$

15) $2 \cdot 2 \cdot 2 \cdot 2$

16) $(5.6)(5.6)(5.6)$

17) $(1.7)(1.7)$

18) $z \cdot z \cdot z$

19) $n \cdot n \cdot n \cdot n$

Write the power in words and as a repeated multiplication. Then evaluate the power.

20) 8^3

21) 2^5

22) 10^6

23) 12^3

24) 9^3

25) 4^4

26) $(0.2)^2$

27) $(0.6)^4$

Evaluate the expression when $n = 7$ and when $n = 0.4$.

28) n^2

29) n^3

30) n^4

31) n^5

32) An aquarium has a square base with a side length of 15 inches. You fill the aquarium with water to a height of 15 inches.



a. Find the volume of the water in the aquarium.

b. A cubic inch of water weighs approximately 0.036 pound. Find the approximate weight of the water in the aquarium.

33)The table shows sums of odd numbers.

| n | Sum of first n odd numbers |
|---|----------------------------|
| 1 | 1 |
| 2 | $1 + 3 = 4$ |
| 3 | $1 + 3 + 5 = ?$ |
| 4 | $1 + 3 + 5 + 7 = ?$ |
| 5 | ? |

a. Copy and complete the table. Identify any pattern that you see.

b. Write a variable expression for the sum of the first n odd numbers.

c. Use your expression from part (b) to find the sum of the first 100 odd numbers.

34)Find values of x , y , and z so that each of the expressions x^2 , y^3 , and z^6 has a value of 64.