Exponents: squares and cubes

Name: _____ Date: _____

Remember: In 3^4 3 is the **base** and 4 is the **exponent**: 3 × 3 × 3 × 3 = 81, **not** 3 × 4. **Why?** The exponent tells you how many times to multiply the base by itself.

1. Write 5 × 5 × 5 with an exponent.

Answer: _____

2. 4^2 =

Answer: _____

3. 2^3 =

Answer: _____

4. 10^3 =

Answer: _____

5. Which is bigger: 3^2 or 2^3?

Answer: _____

6. Write 7^2 as a multiplication and work it out.

Answer: _____

7. Write all the square numbers between 30 and 70.

Answer: _____

8. Write all the cube numbers smaller than 100.

Answer: _____

9. $6^2 + 2^3$ =

Answer: _____

10. 10^4 =

Answer: _____

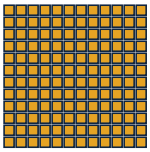
11. 81 is a square number. Of which number?

Answer: _____

12. What are the base and the exponent in 3^5? What is the value?

Answer: _____

13. A square floor is 12 tiles long and 12 tiles wide. How many tiles is that? Also write it with an exponent.



Answer: _____

14. A cube is 4 blocks long, 4 wide and 4 high. How many blocks is that? Also write it with an exponent.

Answer: _____

15. Work out both: 2×3^2 and $(2 \times 3)^2$

Answer: _____

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I got _____ out of 15 ★ ★ ★

Memo · Exponents: squares and cubes

1. **5^3**
   5 is multiplied by itself 3 times.

2. **16**
   $4 \times 4 = 16$

3. **8**
   $2 \times 2 \times 2 = 8$

4. **1 000**
   $10 \times 10 \times 10 = 1\,000$

5. **3^2 (9 > 8)**
   $3^2 = 3 \times 3 = 9$; $2^3 = 2 \times 2 \times 2 = 8$

6. **$7 \times 7 = 49$**

7. **36, 49, 64**
   $6^2 = 36$, $7^2 = 49$, $8^2 = 64$

8. **1, 8, 27, 64**
   $1^3 = 1$, $2^3 = 8$, $3^3 = 27$, $4^3 = 64$ ($5^3 = 125$ is too big)

9. **44**
   $36 + 8 = 44$

10. **10 000**
    a 1 with 4 zeros

11. **9 ($9^2 = 81$)**

12. **Base 3, exponent 5; 243**
    $3 \times 3 \times 3 \times 3 \times 3 = 243$

13. **$144 = 12^2$**

14. **$64 = 4^3$**
    $4 \times 4 \times 4 = 64$

15. **18 and 36**
    $2 \times 9 = 18$; $6^2 = 36$. The brackets change the answer.

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