

Cubes and Cube Roots

MCQ Test, Set 04

Time: 30 minutes

Maximum marks: 25

Name: _____ Class: _____ Date: _____

1. There are 25 questions. Each has exactly one correct answer: choose A, B, C or D.
2. Each correct answer carries 1 mark. There is no negative marking.
3. The key sheet and worked solutions are at the end of this test.

1. $7 \times 7 \times 7 = 7^{\square}$. The number in the box is
A. 21 **B.** 3 **C.** 2 **D.** 7
2. In a^3 , the power 3 shows that
A. 3 is added to a **B.** a is added to itself 3 times
C. a is multiplied by 3 **D.** a is multiplied by itself 3 times
3. $a \times a \times a \times b \times b \times b$ in power form is
A. $a^3 \times b^3$ **B.** $3a \times 3b$ **C.** $(a \times b)^6$ **D.** $a^2 \times b^2$
4. The next number in 1000, 729, 512, 343, ... is
A. 174 **B.** 125 **C.** 216 **D.** 36
5. 100 lies between
A. 4^3 and 5^3 **B.** 5^3 and 6^3 **C.** 3^3 and 4^3 **D.** 10^3 and 11^3
6. Which number is NOT the cube of any whole number?
A. 64 **B.** 1000 **C.** 216 **D.** 90
7. $\square^3 = 729$. The number in the box is
A. 9 **B.** 243 **C.** 81 **D.** 10
8. $14^3 =$
A. 2197 **B.** 2744 **C.** 196 **D.** 42
9. A big cube is built from small cubes, with 20 small cubes along each edge. How many small cubes does it have?
A. 400 **B.** 8000 **C.** 240 **D.** 2400
10. $17^3 = 289 \times \square$. The number in the box is
A. 289 **B.** 3 **C.** 2 **D.** 17
11. Which number, multiplied by itself 3 times, gives -512 ?
A. -7 **B.** -9 **C.** -8 **D.** -64

12.	$(-9) \times (-9) \times (-9) =$	A. -243	B. -729	C. -27	D. 81
13.	$(-40)^3 =$	A. 1600	B. -120	C. -6400	D. -64000
14.	$2^3 + 3^3 + 4^3 =$	A. 729	B. 27	C. 99	D. 29
15.	$1^3 + 4^3 =$	A. 125	B. 15	C. 65	D. 17
16.	Two big cubes are made of small cubes, with 2 and 5 small cubes along each edge. How many small cubes are there in the two cubes together?	A. 133	B. 343	C. 174	D. 29
17.	$(-4)^3 + (-5)^3 =$	A. -41	B. -189	C. 61	D. -729
18.	$(-3)^3 + 7^3 =$	A. 40	B. 370	C. 316	D. 64
19.	$(-3)^3 + 1^3 + (-2)^3 =$	A. -34	B. 36	C. -64	D. -18
20.	One big cube has 8 small cubes along each edge and another has 3. How many more small cubes does the first one have?	A. 55	B. 125	C. 485	D. 539
21.	Ravi says $4^3 - 6^3 = 152$. The correct value is	A. -280	B. -8	C. -20	D. -152
22.	$11^3 - 12^3 =$	A. -23	B. -397	C. -1	D. -3059
23.	$-11^3 - (-11)^3 =$	A. 11^6	B. -2×11^3	C. 0	D. -11^3
24.	$a^3 - (-a)^3 =$	A. a^6	B. 0	C. $2a$	D. $2a^3$
25.	If $x = -2$ and $y = -3$, then $x^3 + y^3 =$	A. -35	B. -125	C. 13	D. 19

Key sheet

1. B	2. D	3. A	4. C	5. A
6. D	7. A	8. B	9. B	10. D
11. C	12. B	13. D	14. C	15. C
16. A	17. B	18. C	19. A	20. C
21. D	22. B	23. C	24. D	25. A

Solutions

1. $7 \times 7 \times 7 = 7^{\square}$. The number in the box is
7 is multiplied by itself 3 times, so the power is 3.
 $7 \times 7 \times 7 = 7^3$

Ans: (B) 3

2. In a^3 , the power 3 shows that
 $a^3 = a \times a \times a$: three a 's are multiplied.

Ans: (D) a is multiplied by itself 3 times

3. $a \times a \times a \times b \times b \times b$ in power form is
 $a \times a \times a = a^3$ and $b \times b \times b = b^3$
So it is $a^3 \times b^3$.

Ans: (A) $a^3 \times b^3$

4. The next number in 1000, 729, 512, 343, ... is
These are $10^3, 9^3, 8^3, 7^3$.

Next is $6^3 = 216$

Ans: (C) 216

5. 100 lies between
 $4^3 = 64$ and $5^3 = 125$
 $64 < 100 < 125$

Ans: (A) 4^3 and 5^3

6. Which number is NOT the cube of any whole number?
 $64 = 4^3, 216 = 6^3, 1000 = 10^3$.
90 is not in the table of cubes.

Ans: (D) 90

7. $\square^3 = 729$. The number in the box is
 $9 \times 9 \times 9 = 729$
So the box is 9.

Ans: (A) 9

8. $14^3 =$
 $14 \times 14 = 196$
 $196 \times 14 = 2744$

Ans: (B) 2744

9. A big cube is built from small cubes, with 20 small cubes along each edge. How many small cubes does it have?

$$\text{Number} = 20^3$$

$$20 \times 20 = 400, 400 \times 20 = 8000$$

Ans: (B) 8000

10. $17^3 = 289 \times \square$. The number in the box is

$$17^3 = 17 \times 17 \times 17 \text{ and } 17 \times 17 = 289$$

$$\therefore 17^3 = 289 \times 17$$

Ans: (D) 17

11. Which number, multiplied by itself 3 times, gives -512 ?

$$(-8)^3 = -8^3 = -512$$

Ans: (C) -8

12. $(-9) \times (-9) \times (-9) =$

$$(-9) \times (-9) = 81$$

$$81 \times (-9) = -729$$

Ans: (B) -729

13. $(-40)^3 =$

$$(-40) \times (-40) = 1600$$

$$1600 \times (-40) = -64000$$

Ans: (D) -64000

14. $2^3 + 3^3 + 4^3 =$

$$2^3 + 3^3 + 4^3 = 8 + 27 + 64$$

$$= 99$$

Ans: (C) 99

15. $1^3 + 4^3 =$

$$1^3 + 4^3 = 1 + 64$$

$$= 65$$

Ans: (C) 65

16. Two big cubes are made of small cubes, with 2 and 5 small cubes along each edge. How many small cubes are there in the two cubes together?

$$\text{Total} = 2^3 + 5^3$$

$$2^3 + 5^3 = 8 + 125$$

$$= 133$$

Ans: (A) 133

17. $(-4)^3 + (-5)^3 =$
 $(-4)^3 + (-5)^3 = -64 + (-125)$
 $= -64 - 125$
 $= -189$

Ans: (B) -189

18. $(-3)^3 + 7^3 =$
 $(-3)^3 + 7^3 = -27 + 343$
 $= 316$

Ans: (C) 316

19. $(-3)^3 + 1^3 + (-2)^3 =$
 $(-3)^3 + 1^3 + (-2)^3 = -27 + 1 + (-8)$
 $= -27 + 1 - 8$
 $= -34$

Ans: (A) -34

20. One big cube has 8 small cubes along each edge and another has 3. How many more small cubes does the first one have?

More $= 8^3 - 3^3$
 $8^3 - 3^3 = 512 - 27$
 $= 485$

Ans: (C) 485

21. Ravi says $4^3 - 6^3 = 152$. The correct value is

$4^3 - 6^3 = 64 - 216$
 $= -152$

Ravi took the smaller cube from the bigger one.

Ans: (D) -152

22. $11^3 - 12^3 =$
 $12^3 = 144 \times 12 = 1728$
 $11^3 - 12^3 = 1331 - 1728$
 $= -397$

Ans: (B) -397

23. $-11^3 - (-11)^3 =$
 $(-11)^3 = -11^3$
 $-11^3 - (-11^3) = -11^3 + 11^3 = 0$

Ans: (C) 0

24. $a^3 - (-a)^3 =$

$$(-a)^3 = -a^3$$

$$a^3 - (-a^3) = a^3 + a^3 = 2a^3$$

Ans: (D) $2a^3$

25. If $x = -2$ and $y = -3$, then $x^3 + y^3 =$

$$(-2)^3 + (-3)^3 = -8 + (-27)$$

$$= -8 - 27$$

$$= -35$$

Ans: (A) -35
