

Squares and Square Roots

MCQ Test, Set 02

Time: 30 minutes

Maximum marks: 25

Name: _____ Class: _____ Date: _____

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

1. Which of these is equal to 41×41 ?

- A.** 41^3 **B.** 2×41 **C.** 41^2 **D.** 2^{41}

2. Which of these is a perfect square?

- A.** 351 **B.** 361 **C.** 371 **D.** 381

3. Given $24^2 = 576$, using the pattern of the table, $26^2 =$

- A.** 52 **B.** 578 **C.** 776 **D.** 676

4. $30^2 =$

- A.** 9000 **B.** 60 **C.** 900 **D.** 90

5. $35^2 = \square 25$. The number in the box is

- A.** 12 **B.** 7 **C.** 16 **D.** 9

6. If $124^2 = 15376$, then $\sqrt{15376} =$

- A.** $\sqrt{124}$ **B.** 124 **C.** 7688 **D.** 248

7. $\sqrt{196} =$

- A.** 14 **B.** 13 **C.** 98 **D.** 15

8. $\sqrt{\square} = 17$. The number in the box is

- A.** 8.5 **B.** 34 **C.** $\sqrt{17}$ **D.** 289

9. $324 = 2 \times 2 \times 3 \times 3 \times 3 \times 3$. So $\sqrt{324} =$

- A.** 18 **B.** 6 **C.** 36 **D.** 162

10. $\sqrt{2 \times 2 \times 11 \times 11} =$

- A.** 11 **B.** 13 **C.** 22 **D.** 484

11. By the long division method, $\sqrt{3249} =$

- A.** 67 **B.** 57 **C.** 47 **D.** 53

12.	While finding $\sqrt{7225}$ by long division, the first digit of the root is 8. The next divisor begins with	A. 16	B. 64	C. 9	D. 8
13.	The square root of 204304 has how many digits?	A. 4	B. 2	C. 3	D. 6
14.	$\sqrt{2} \times \sqrt{18} =$	A. 18	B. $\sqrt{20}$	C. 36	D. 6
15.	$(\sqrt{21})^2 =$	A. 21	B. 441	C. $\sqrt{21}$	D. 42
16.	$\frac{\sqrt{63}}{\sqrt{7}} =$	A. 9	B. 4.5	C. $\sqrt{56}$	D. 3
17.	$\frac{26}{\sqrt{26}} =$	A. 26	B. 1	C. $26\sqrt{26}$	D. $\sqrt{26}$
18.	$\sqrt{16} + \sqrt{49} =$	A. $\sqrt{65}$	B. 11	C. 65	D. 121
19.	$\sqrt{100} - \sqrt{64} =$	A. 2	B. 6	C. 18	D. 36
20.	$\sqrt{15^2 + 20^2} =$	A. 35	B. 625	C. 25	D. $\sqrt{35}$
21.	$\sqrt{(6 + 7)^2} =$	A. 169	B. 13	C. 85	D. $\sqrt{85}$
22.	$\sqrt{0.0036} =$	A. 0.06	B. 0.6	C. 0.0018	D. 0.006
23.	$\sqrt{0.000049} =$	A. 0.0007	B. 0.007	C. 0.07	D. 0.0000245
24.	$\sqrt{1.44} =$	A. 0.12	B. 12	C. 1.2	D. 0.72
25.	$\sqrt{\square} = 1.3$. The number in the box is	A. 0.169	B. 2.6	C. 16.9	D. 1.69

Key sheet

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

Solutions

1. Which of these is equal to 41×41 ?

41 is multiplied by itself 2 times.

$$\therefore 41 \times 41 = 41^2$$

Ans: (C) 41^2

2. Which of these is a perfect square?

$$361 = 19 \times 19 = 19^2$$

The other numbers are not in the table of squares.

Ans: (B) 361

3. Given $24^2 = 576$, using the pattern of the table, $26^2 =$

In the table, 24^2 and 26^2 differ by 100, 23^2 and 27^2 by 200, 22^2 and 28^2 by 300, 21^2 and 29^2 by 400.

$$26^2 = 576 + 100 = 676$$

Ans: (D) 676

4. $30^2 =$

$$30^2 = 30 \times 30$$

$3 \times 3 = 9$, then write two zeros: 900

Ans: (C) 900

5. $35^2 = \square 25$. The number in the box is

Rule: multiply the number before 5 by the next number, then write 25.

$$3 \times 4 = 12, \text{ so } 35^2 = 1225$$

Ans: (A) 12

6. If $124^2 = 15376$, then $\sqrt{15376} =$

$$a^2 = b \Rightarrow \sqrt{b} = a$$

$$124^2 = 15376 \Rightarrow \sqrt{15376} = 124$$

(The square root is not half the number.)

Ans: (B) 124

7. $\sqrt{196} =$

$$14^2 = 14 \times 14 = 196$$

$$\therefore \sqrt{196} = 14$$

Ans: (A) 14

8. $\sqrt{\square} = 17$. The number in the box is

$$\sqrt{b} = a \Rightarrow b = a^2$$

$$17^2 = 17 \times 17 = 289$$

Ans: (D) 289

9. $324 = 2 \times 2 \times 3 \times 3 \times 3 \times 3$. So $\sqrt{324} =$

Take one factor from each pair: $2 \times 3 \times 3 = 18$

Ans: (A) 18

10. $\sqrt{2 \times 2 \times 11 \times 11} =$

$$\sqrt{2 \times 2 \times 11 \times 11} = \sqrt{(2 \times 2) \times (11 \times 11)}$$
$$= 2 \times 11 = 22$$

Ans: (C) 22

11. By the long division method, $\sqrt{3249} =$

Pairs: $\overline{32} \overline{49}$.

$$5 \times 5 = 25 \leq 32: \text{ first digit } 5, \text{ and } 32 - 25 = 7$$

Bring down 49: we get 749. New divisor: $5 \times 2 = 10$; $107 \times 7 = 749$ ($108 \times 8 = 864$ is too big); $749 - 749 = 0$

$$\text{Remainder } 0. \therefore \sqrt{3249} = 57$$

Ans: (B) 57

12. While finding $\sqrt{7225}$ by long division, the first digit of the root is 8. The next divisor begins with

$$\text{Double the root found so far: } 8 \times 2 = 16$$

$$\text{Then } 165 \times 5 = 825 \text{ (} 166 \times 6 = 996 \text{ is too big), so } \sqrt{7225} = 85$$

Ans: (A) 16

13. The square root of 204304 has how many digits?

Pairs from the right: $\overline{20} \overline{43} \overline{04}$, that is 3 groups.

$$\text{One digit of the root for each group: } \sqrt{204304} = 452$$

Ans: (C) 3

14. $\sqrt{2} \times \sqrt{18} =$

$$\sqrt{2} \times \sqrt{18} = \sqrt{2 \times 18} = \sqrt{36} = 6$$

Ans: (D) 6

15. $(\sqrt{21})^2 =$

$$(\sqrt{a})^2 = \sqrt{a} \times \sqrt{a} = a$$

$$\therefore (\sqrt{21})^2 = 21$$

Ans: (A) 21

16. $\frac{\sqrt{63}}{\sqrt{7}} =$

$$\frac{\sqrt{63}}{\sqrt{7}} = \sqrt{\frac{63}{7}} = \sqrt{9} = 3$$

Ans: (D) 3

17. $\frac{26}{\sqrt{26}} =$

$$\frac{26}{\sqrt{26}} = \frac{\sqrt{26} \times \sqrt{26}}{\sqrt{26}} = \sqrt{26}$$

Ans: (D) $\sqrt{26}$

18. $\sqrt{16} + \sqrt{49} =$

$$\sqrt{16} + \sqrt{49} = 4 + 7 = 11$$

$\sqrt{a} + \sqrt{b} \neq \sqrt{a+b}$, so do not add first.

Ans: (B) 11

19. $\sqrt{100} - \sqrt{64} =$

$$\sqrt{100} - \sqrt{64} = 10 - 8 = 2$$

$\sqrt{a} - \sqrt{b} \neq \sqrt{a-b}$, so do not subtract first.

Ans: (A) 2

20. $\sqrt{15^2 + 20^2} =$

$$\sqrt{15^2 + 20^2} = \sqrt{225 + 400} = \sqrt{625} = 25$$

$$\sqrt{a^2 + b^2} \neq a + b$$

Ans: (C) 25

21. $\sqrt{(6+7)^2} =$

$$\sqrt{(a+b)^2} = a+b \text{ when } a+b > 0$$

$$\sqrt{(6+7)^2} = \sqrt{13^2} = 13$$

Ans: (B) 13

22. $\sqrt{0.0036} =$

$$\sqrt{0.0036} = \sqrt{\frac{36}{10000}}$$

$$= \frac{\sqrt{36}}{\sqrt{10000}}$$

$$= \frac{6}{100}$$

$$= 0.06$$

Ans: (A) 0.06

23. $\sqrt{0.000049} =$

$$\sqrt{0.000049} = \sqrt{\frac{49}{1000000}}$$

$$= \frac{\sqrt{49}}{\sqrt{1000000}}$$

$$= \frac{7}{1000}$$

$$= 0.007$$

Ans: (B) 0.007

24. $\sqrt{1.44} =$

$$\sqrt{1.44} = \sqrt{\frac{144}{100}} = \frac{\sqrt{144}}{\sqrt{100}} = \frac{12}{10} = 1.2$$

Ans: (C) 1.2

25. $\sqrt{\square} = 1.3$. The number in the box is

$$1.3 = \frac{13}{10}$$

$$\left(\frac{13}{10}\right)^2 = \frac{169}{100} = 1.69$$

$$\text{Check: } \sqrt{1.69} = \frac{\sqrt{169}}{\sqrt{100}} = 1.3$$

Ans: (D) 1.69
