

Squares and Square Roots

MCQ Test, Set 07

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.

- a^2 is read as
 A. '2 times a ' B. ' a plus 2' C. ' a cubed' D. ' a squared'
- The square of 27 is
 A. 676 B. 784 C. 54 D. 729
- The next number in 361, 400, 441, ... is
 A. 484 B. 483 C. 529 D. 482
- $70^2 =$
 A. 140 B. 4900 C. 490 D. 49000
- To find 45^2 by the rule for numbers ending in 5, we first find
 A. 4×6 B. 4×5 C. 4×4 D. $4 + 5$
- If $m^2 = n$, then
 A. $\sqrt{n} = 2 \times m$ B. $n^2 = m$ C. $\sqrt{m} = n$ D. $\sqrt{n} = m$
- $\sqrt{361} =$
 A. 20 B. 18 C. 180.5 D. 19
- The number whose square root is 24 is
 A. $\sqrt{24}$ B. 48 C. 576 D. 12
- $5776 = 2 \times 2 \times 2 \times 2 \times 19 \times 19$. So $\sqrt{5776} =$
 A. 2888 B. 38 C. 76 D. 152
- $\sqrt{2 \times 2 \times 5 \times 5 \times 11 \times 11} =$
 A. 55 B. 110 C. 18 D. 12100
- By the long division method, $\sqrt{3481} =$
 A. 49 B. 59 C. 51 D. 69

12. In finding $\sqrt{1225}$ by the long division method, the first digit of the root is 3. The new divisor starts with
- A. 3 B. 4 C. 9 D. 6
-
13. In finding $\sqrt{39601}$ by the long division method, the first digit of the root is
- A. 1 B. 6 C. 3 D. 2
-
14. $\sqrt{2} \times \sqrt{72} =$
- A. 12 B. $\sqrt{74}$ C. 72 D. 144
-
15. $(\sqrt{41})^2 =$
- A. $\sqrt{41}$ B. 82 C. 41 D. 1681
-
16. $\frac{\sqrt{128}}{\sqrt{2}} =$
- A. 32 B. 64 C. $\sqrt{126}$ D. 8
-
17. $\frac{35}{\sqrt{35}} =$
- A. $35\sqrt{35}$ B. $\sqrt{35}$ C. 1 D. 35
-
18. $\sqrt{49} + \sqrt{36} =$
- A. $\sqrt{85}$ B. 85 C. 13 D. 169
-
19. $\sqrt{676} - \sqrt{100} =$
- A. 576 B. 36 C. 24 D. 16
-
20. $\sqrt{14^2 + 48^2} =$
- A. 50 B. 62 C. $\sqrt{62}$ D. 2500
-
21. $\sqrt{(15 - 4)^2} =$
- A. 11 B. $\sqrt{209}$ C. 121 D. 209
-
22. $\sqrt{0.25} =$
- A. 0.05 B. 0.125 C. 0.5 D. 5
-
23. $\sqrt{0.0625}$ written as a fraction is
- A. $\frac{25}{1000}$ B. $\frac{25}{100}$ C. $\frac{25}{10}$ D. $\frac{625}{100}$
-
24. $\sqrt{4.41} =$
- A. 21 B. 0.21 C. 2.1 D. 2.205
-
25. $\sqrt{\square} = 8.5$. The number in the box is
- A. 72.25 B. 17 C. 722.5 D. 7.225
-

Key sheet

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

Solutions

1. a^2 is read as

$a^2 = a \times a$ is read as 'a squared' (or) 'a power 2'.

Ans: (D) 'a squared'

2. The square of 27 is

$$27^2 = 27 \times 27 = 729$$

Ans: (D) 729

3. The next number in 361, 400, 441, ... is

These are $19^2, 20^2, 21^2$.

Next is $22^2 = 484$

Ans: (A) 484

4. $70^2 =$

$$70^2 = 70 \times 70$$

$7 \times 7 = 49$, then write two zeros: 4900

Ans: (B) 4900

5. To find 45^2 by the rule for numbers ending in 5, we first find

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

$$4 \times 5 = 20, \text{ so } 45^2 = 2025$$

Ans: (B) 4×5

6. If $m^2 = n$, then

By the definition, $a^2 = b \Rightarrow \sqrt{b} = a$.

$$\text{So } m^2 = n \Rightarrow \sqrt{n} = m$$

Ans: (D) $\sqrt{n} = m$

7. $\sqrt{361} =$

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

$$\therefore \sqrt{361} = 19$$

Ans: (D) 19

8. The number whose square root is 24 is

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

$$24^2 = 24 \times 24 = 576$$

Ans: (C) 576

9. $5776 = 2 \times 2 \times 2 \times 2 \times 19 \times 19$. So $\sqrt{5776} =$

Take one factor from each pair: $2 \times 2 \times 19 = 76$

Ans: (C) 76

10. $\sqrt{2 \times 2 \times 5 \times 5 \times 11 \times 11} =$

$$\sqrt{2 \times 2 \times 5 \times 5 \times 11 \times 11} = \sqrt{(2 \times 2) \times (5 \times 5) \times (11 \times 11)}$$

$$= 2 \times 5 \times 11 = 110$$

Ans: (B) 110

11. By the long division method, $\sqrt{3481} =$

Pairs: $\overline{34} \overline{81}$.

$$5 \times 5 = 25 \leq 34; \text{ first digit } 5, \text{ and } 34 - 25 = 9$$

Bring down 81: we get 981. New divisor: $5 \times 2 = 10$; $109 \times 9 = 981$; $981 - 981 = 0$

Remainder 0. $\therefore \sqrt{3481} = 59$

Ans: (B) 59

12. In finding $\sqrt{1225}$ by the long division method, the first digit of the root is 3. The new divisor starts with

$$\text{Double the root found so far: } 3 \times 2 = 6$$

$$\text{Then } 65 \times 5 = 325 \text{ (} 66 \times 6 = 396 \text{ is too big), so } \sqrt{1225} = 35$$

Ans: (D) 6

13. In finding $\sqrt{39601}$ by the long division method, the first digit of the root is

Pair from the right: $\overline{3} \overline{96} \overline{01}$; the first group is 3.

$$1 \times 1 = 1 \leq 3, \text{ so the first digit is } 1$$

Ans: (A) 1

14. $\sqrt{2} \times \sqrt{72} =$

$$\sqrt{2} \times \sqrt{72} = \sqrt{2 \times 72} = \sqrt{144} = 12$$

Ans: (A) 12

15. $(\sqrt{41})^2 =$

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

$$\therefore (\sqrt{41})^2 = 41$$

Ans: (C) 41

16. $\frac{\sqrt{128}}{\sqrt{2}} =$

$$\frac{\sqrt{128}}{\sqrt{2}} = \sqrt{\frac{128}{2}} = \sqrt{64} = 8$$

Ans: (D) 8

17. $\frac{35}{\sqrt{35}} =$

$$\frac{35}{\sqrt{35}} = \frac{\sqrt{35} \times \sqrt{35}}{\sqrt{35}} = \sqrt{35}$$

Ans: (B) $\sqrt{35}$

18. $\sqrt{49} + \sqrt{36} =$

$$\sqrt{49} + \sqrt{36} = 7 + 6 = 13$$

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

Ans: (C) 13

19. $\sqrt{676} - \sqrt{100} =$

$$\sqrt{676} - \sqrt{100} = 26 - 10 = 16$$

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

Ans: (D) 16

20. $\sqrt{14^2 + 48^2} =$

$$\sqrt{14^2 + 48^2} = \sqrt{196 + 2304} = \sqrt{2500} = 50$$

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

Ans: (A) 50

21. $\sqrt{(15 - 4)^2} =$

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

$$\sqrt{(15 - 4)^2} = \sqrt{11^2} = 11$$

Ans: (A) 11

22. $\sqrt{0.25} =$

$$\sqrt{0.25} = \sqrt{\frac{25}{100}}$$

$$= \frac{\sqrt{25}}{\sqrt{100}}$$

$$= \frac{5}{10}$$

$$= 0.5$$

Ans: (C) 0.5

23. $\sqrt{0.0625}$ written as a fraction is

$$\sqrt{0.0625} = \sqrt{\frac{625}{10000}} = \frac{\sqrt{625}}{\sqrt{10000}} = \frac{25}{100}$$

Ans: (B) $\frac{25}{100}$

24. $\sqrt{4.41} =$

$$\sqrt{4.41} = \sqrt{\frac{441}{100}} = \frac{\sqrt{441}}{\sqrt{100}} = \frac{21}{10} = 2.1$$

Ans: (C) 2.1

25. $\sqrt{\square} = 8.5$. The number in the box is

$$8.5 = \frac{85}{10}$$

$$\left(\frac{85}{10}\right)^2 = \frac{7225}{100} = 72.25$$

$$\text{Check: } \sqrt{72.25} = \frac{\sqrt{7225}}{\sqrt{100}} = 8.5$$

Ans: (A) 72.25
