



# SAT Math Practice

## Topic: Exponents and Radicals

### Instructions

Solve the following problems related to exponents and radicals. Show all work clearly. For multiple-choice questions, circle the correct answer. For grid-in questions, fill in the grid with your answer.

### Practice Problems

1. Simplify:  $2^3 \times 2^4$

- (a)  $2^7$
- (b)  $2^{12}$
- (c) 128
- (d) 16

2. Simplify:  $(3^2)^3$

- (a)  $3^6$
- (b) 729
- (c) 81
- (d) 27

3. Simplify:  $5^4 \div 5^2$

- (a)  $5^2$
- (b) 25
- (c)  $5^6$
- (d) 15

4. Simplify:  $\sqrt{16}$

- (a) 2
- (b) 4
- (c) 8
- (d) 16

5. Simplify:  $\sqrt{81}$

- (a) 9
- (b) 8
- (c) 7
- (d) 3

6. Simplify:  $\sqrt{49}$

- (a) 7
- (b) 14
- (c) 6
- (d) 3

7. Solve for  $x$ :  $x^3 = 27$

- (a) 2
- (b) 3
- (c) 4
- (d) 5

8. Simplify:  $4\sqrt{3} \times 2\sqrt{3}$

- (a)  $8\sqrt{3}$
- (b) 8
- (c)  $4\sqrt{6}$
- (d) 24

9. Simplify:  $\sqrt{12}$

(a)  $2\sqrt{3}$

(b)  $3\sqrt{4}$

(c) 6

(d)  $\sqrt{6}$

10. Simplify:  $3^2 \times 3^3$

(a)  $3^6$

(b)  $3^5$

(c) 243

(d) 81

11. Solve for  $x$ :  $5x^2 = 45$

(a) 5

(b) 9

(c) 3

(d) 15

12. Simplify:  $\frac{\sqrt{50}}{\sqrt{2}}$

(a) 5

(b)  $5\sqrt{2}$

(c)  $\sqrt{25}$

(d)  $\sqrt{100}$

13. Solve for  $x$ :  $x^2 = 16$

(a) 4

(b) 16

(c) -4

(d) Both a and c

14. Solve for  $x$ :  $x^2 = 25$

(Grid-in Question: Answer in the grid as a number.)

15. Solve for  $y$ :  $y^3 = 64$

(Grid-in Question: Answer in the grid as a number.)

## Answer Key

1. (a)  $2^7$
2. (a)  $3^6$
3. (a)  $5^2$
4. (b) 4
5. (a) 9
6. (a) 7
7. (b) 3
8. (d) 24
9. (a)  $2\sqrt{3}$
10. (b)  $3^5$
11. (c) 3
12. (b)  $5\sqrt{2}$
13. (d) Both a and c
14. (7)  $x = 5$  (Grid-in answer)
15. (4)  $y = 4$  (Grid-in answer)

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