Square Roots & Cube Roots

Accelerated 7th Grade Math

Name:_____

For 1–5, find the TWO square roots for each.

1. 225
2. 121
3. 256
4. 81
5. 16

For 6–10, estimate the square root to the nearest TENTH for each.

6. $\sqrt{80}$
7. $\sqrt{328}$
8. $-\sqrt{35}$
9. $\sqrt{87}$
10. $\sqrt{409}$

For 11–15, find the cube root for each.

11. 8
12. 1
13. 216
14. 512
15. 1,000

For 16–30, evaluate each completely.

16. $-\sqrt{169}$
17. $\sqrt{361}$
18. $\sqrt{-256}$
19. $\sqrt[3]{-64}$
20. $\sqrt{144}$
21. $\sqrt[3]{-27}$
22. $\sqrt{324}$
23. $\sqrt[3]{512}$
24. $\sqrt{-400}$
25. $\sqrt[3]{1,000}$
26. $\sqrt{225}$
27. $-\sqrt{225}$
28. $\sqrt[3]{125}$
29. $\sqrt[3]{216}$
30. $\sqrt{289}$

PRACTICE

Find the square roots of each number.

1. 144 _____
2. 256 _____
3. $\frac{1}{81}$ _____
4. $\frac{49}{900}$ _____
5. 400 _____
6. $\frac{1}{100}$ _____

Find the cube root of each number.

7. 216 _____
8. 8000 _____
9. $\frac{27}{125}$ _____
10. $\frac{1}{27}$ _____
11. $\frac{27}{64}$ _____
12. 512 _____

Simplify each expression.

13. $\sqrt{16} + \sqrt{25}$ _____
14. $\sqrt[3]{125} + 10$ _____
15. $\sqrt{25} + 10$ _____
16. $8 - \sqrt{64}$ _____
17. $\sqrt[3]{\frac{16}{2}} + 1$ _____
18. $\sqrt{\frac{16}{4}} + \sqrt{4}$ _____

19. The foyer of Ann's house is a square with an area of 36 square feet. What is the length of each side of the foyer?

_____

20. A chessboard has 32 black squares and 32 white squares arranged in a square. How many squares are along each side of the chessboard?

_____

21. A cubic aquarium holds 27 cubic feet of water. What is the length of each edge of the cube?

_____

22. **Reasoning** How can you check your answer when you find the square root(s) of a number?

_____

_____

23. **Reasoning** Can you arrange 12 small squares to make a larger square? Can you arrange 20 small cubes to make a larger cube? Explain how this relates to perfect squares and perfect cubes.

_____

_____

PRACTICE

Approximate each irrational number to the nearest tenth without using a calculator.

1. $\sqrt{34}$ _____

2. $\sqrt{82}$ _____

3. $\sqrt{45}$ _____

4. $\sqrt{104}$ _____

5. $\sqrt{71}$ _____

6. $\sqrt{19}$ _____

7. $\sqrt{24}$ _____

8. $\sqrt{41}$ _____

Compare. Write <, >, or =.

9. $\sqrt{3}+2$ ⋮ $\sqrt{2}+3$

10. $\sqrt{11}+15$ ⋮ $\sqrt{15}+11$

11. $\sqrt{6}+5$ ⋮ $6+\sqrt{5}$

12. $\sqrt{9}+3$ ⋮ $9+\sqrt{3}$

13. $\sqrt{15}-3$ ⋮ $-2+\sqrt{5}$

14. $10-\sqrt{8}$ ⋮ $12-\sqrt{2}$

15. $\sqrt{7}+1$ ⋮ $\sqrt{10}-1$

16. $\sqrt{12}+3$ ⋮ $3+\sqrt{11}$

Order the numbers from least to greatest.

17. $\sqrt{7}, \frac{\sqrt{8}}{2}, 2$ _____

18. $\sqrt{10}, \pi, 3.5$ _____

19. $1.5, \frac{\sqrt{12}}{3}, \sqrt{3}$ _____

20. $2\sqrt{7}, \sqrt{24}, 2\pi$ _____

Name _____ Date _____

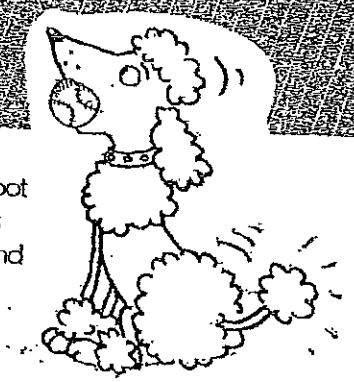
Radicals

$$\sqrt{\frac{144}{36}} = \sqrt{\frac{(12)(12)}{(6)(6)}} = \frac{12}{6} = 2$$

1. $\sqrt{16}$
2. $\sqrt{49}$
3. $\left(\sqrt{4}\right)^2$
4. $\left(\sqrt{121}\right)^2$
5. $-\left(\sqrt{43}\right)^2$
6. $\sqrt{\frac{1}{64}}$
7. $\sqrt{196}$
8. $-\sqrt{\frac{36}{81}}$
9. $\pm\sqrt{49}$
10. $\pm\sqrt{169}$
11. $\pm\sqrt{1225}$
12. $\pm\sqrt{\frac{4}{36}}$
13. $\pm\sqrt{\frac{1}{256}}$
14. $-\sqrt{\frac{81}{9}}$
15. $-\sqrt{\frac{484}{100}}$
16. $-\sqrt{\frac{324}{729}}$

Date:

et's Play Ball



problems below, solve all the number sentences enclosed within the square root , and write your answers in the spaces provided. Then arrange all of the answers from least to greatest in the column on the right side of the page. Write the word found next to the answer in the corresponding boxes to reveal the answer to the riddle below.

Why did the toy poodle like to play baseball?

$\sqrt{3 \times 12 + (3 \times 5 - 2)} =$	____	= HOME
$\sqrt{28 \div 7 \times 4} + \sqrt{20 \times 5 - (24 - 5)} =$	____	= GET
$\sqrt{4 \times 9 + 12 + (7 \times 3 - 5)} =$	____	= PLATE
$\sqrt{25} + \sqrt{35 - (8 + 2)} + \sqrt{4} =$	____	= TO
$\sqrt{7 \times 5 - (12 - 2)} - \sqrt{(16 + 16) \div 8} =$	____	= HE
$\sqrt{72 \div 8} \times \sqrt{36 \div 4} =$	____	= HE
$\sqrt{24 - 16 + 1} \times \sqrt{40 \div 5 - 4} =$	____	= TO
$\sqrt{36 - (2 \times 10)} + \sqrt{49} + \sqrt{18 \div 2} =$	____	= WALKED
$\sqrt{7 + 3 + (8 \times 2) - 1} =$	____	= UP
$\sqrt{4 \times 8 + (4 \times 4 \times 2)} \div \sqrt{13 - 9} =$	____	= GOT
$\sqrt{(8 \times 12) - (5 \times 3)} + \sqrt{14 \times 2 \div 7} =$	____	= SURE
$\sqrt{36} - \sqrt{16} =$	____	= WHENEVER
$\sqrt{(8 \div 4 \times 15 - 5) \times 4} =$	____	= WAS

LEAST

	=
	=
	=
	=
	=
	=
	=
	=
	=
	=
	=
	=

GREATEST