NAME _____ DATE _____ PERIOD _____

7-7 Skills Practice

Solving Radical Equations and Inequalities

Solve each equation or inequality.

1. $\sqrt{x} = 5$

2. $\sqrt{x} + 3 = 7$

3. $5\sqrt{j} = 1$

4. $v^{\frac{1}{2}} + 1 = 0$

5. $18 - 3y^{\frac{1}{2}} = 25$

6. $\sqrt[3]{2w} = 4$

7. $\sqrt{b - 5} = 4$

8. $\sqrt{3n + 1} = 5$

9. $\sqrt[3]{3r - 6} = 3$

10. $2 + \sqrt{3p + 7} = 6$

11. $\sqrt{k - 4} - 1 = 5$

12. $(2d + 3)^{\frac{1}{3}} = 2$

13. $(t - 3)^{\frac{1}{3}} = 2$

14. $4 - (1 - 7u)^{\frac{1}{3}} = 0$

15. $\sqrt{3z - 2} = \sqrt{z - 4}$

16. $\sqrt{g + 1} = \sqrt{2g - 7}$

17. $\sqrt{x - 1} = 4\sqrt{x + 1}$

18. $5 + \sqrt{s - 3} \leq 6$

19. $-2 + \sqrt{3x + 3} \leq 7$

20. $-\sqrt{2a + 4} \geq -6$

21. $2\sqrt{4r - 3} \geq 10$

22. $4 - \sqrt{3x + 1} \geq 3$

23. $\sqrt{y + 4} - 3 \geq 3$

24. $-3\sqrt{11r + 3} \geq -15$

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7-7 Skills Practice

Solving Radical Equations and Inequalities

Solve each equation or inequality.

1. $\sqrt{x} = 5$ 25
2. $\sqrt{x} + 3 = 7$ 16
3. $5\sqrt{j} = 1$ $\frac{1}{25}$
4. $v^{\frac{1}{2}} + 1 = 0$ no solution
5. $18 - 3y^{\frac{1}{2}} = 25$ no solution
6. $\sqrt[3]{2w} = 4$ 32
7. $\sqrt{b - 5} = 4$ 21
8. $\sqrt{3n + 1} = 5$ 8
9. $\sqrt[3]{3r - 6} = 3$ 11
10. $2 + \sqrt{3p + 7} = 6$ 3
11. $\sqrt{k - 4} - 1 = 5$ 40
12. $(2d + 3)^{\frac{1}{3}} = 2$ $\frac{5}{2}$
13. $(t - 3)^{\frac{1}{3}} = 2$ 11
14. $4 - (1 - 7u)^{\frac{1}{3}} = 0$ -9
15. $\sqrt{3z - 2} = \sqrt{z - 4}$ no solution
16. $\sqrt{g + 1} = \sqrt{2g - 7}$ 8
17. $\sqrt{x - 1} = 4\sqrt{x + 1}$ no solution
18. $5 + \sqrt{s - 3} \geq 6$ $s \geq 4$
19. $-2 + \sqrt{3x + 3} \leq 7$ $x \leq 26$
20. $-\sqrt{2a + 4} \geq -6$ $a \leq 16$
21. $2\sqrt{4r - 3} \geq 10$ $r \geq 7$
22. $4 - \sqrt{3x + 1} \geq 3$ $x \leq 0$
23. $\sqrt{y + 4} - 3 \geq 3$ $y \geq 32$
24. $-3\sqrt{11r + 3} \geq -15$ $r \leq 2$

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7-7 Practice

Solving Radical Equations and Inequalities

Solve each equation or inequality.

1. $\sqrt{x} = 8$ 64
2. $4 - \sqrt{x} = 3$ 1
3. $\sqrt{2p} + 3 = 10$ $\frac{49}{2}$
4. $4\sqrt{3h} - 2 = 0$ $\frac{1}{12}$
5. $c^{\frac{1}{2}} + 6 = 9$ 9
6. $18 + 7h^{\frac{1}{2}} = 12$ no solution
7. $\sqrt[3]{d + 2} = 7$ 341
8. $\sqrt[5]{w - 7} = 1$ 8
9. $6 + \sqrt[3]{q - 4} = 9$ 31
10. $\sqrt[4]{y - 9} + 4 = 0$ no solution
11. $\sqrt{2m - 6} - 16 = 0$ 131
12. $\sqrt[3]{4m + 1} - 2 = 2$ $\frac{63}{4}$
13. $\sqrt{8n - 5} - 1 = 2$ $\frac{7}{4}$
14. $\sqrt{1 - 4t} - 8 = -6$ $-\frac{3}{4}$
15. $\sqrt{2t - 5} - 3 = 3$ $\frac{41}{2}$
16. $(7v - 2)^{\frac{1}{4}} + 12 = 7$ no solution
17. $(3g + 1)^{\frac{1}{2}} - 6 = 4$ 33
18. $(6u - 5)^{\frac{1}{3}} + 2 = -3$ -20
19. $\sqrt{2d - 5} = \sqrt{d - 1}$ 4
20. $\sqrt{4r - 6} = \sqrt{r}$ 2
21. $\sqrt{6x - 4} = \sqrt{2x + 10}$ $\frac{7}{2}$
22. $\sqrt{2x + 5} = \sqrt{2x + 1}$ no solution
23. $3\sqrt{a} \geq 12$ $a \geq 16$
24. $\sqrt{z + 5} + 4 \leq 13$ $-5 \leq z \leq 76$
25. $8 + \sqrt{2q} \leq 5$ no solution
26. $\sqrt{2a - 3} < 5$ $\frac{3}{2} \leq a < 14$
27. $9 - \sqrt{c + 4} \leq 6$ $c \geq 5$
28. $\sqrt[3]{x - 1} < -2$ $x < -7$

29. **STATISTICS** Statisticians use the formula $\sigma = \sqrt{v}$ to calculate a standard deviation σ, where v is the variance of a data set. Find the variance when the standard deviation is 15. 225

30. **GRAVITATION** Helena drops a ball from 25 feet above a lake. The formula $t = \frac{1}{4}\sqrt{25 - h}$ describes the time t in seconds that the ball is h feet above the water. How many feet above the water will the ball be after 1 second? 9 ft

Answers