

**5-7****Solving Radical Equations and Inequalities**

Solve each equation.

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

Name: \_\_\_\_\_ Period: \_\_\_\_\_

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

Solve each inequality.

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.  $\sqrt{x-1} < 2$

$1 \leq x < 5$

29.  $4\sqrt{x+1} \geq 12$

$x \geq 8$

30.  $5 + \sqrt{c-3} \leq 6$

$3 \leq c \leq 4$

32.  $-2 + \sqrt{3x+3} < 7$

$-1 \leq x < 26$

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

$-2 \leq a \leq 16$

34.  $2\sqrt{4r-3} > 10$

$r > 7$

35.  $4 - \sqrt{3x+1} > 3$

$-\frac{1}{3} \leq x < 0$

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

$y \geq 32$

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

$-\frac{3}{11} \leq r \leq 2$