

Solving Radical Equations

Date _____ Period _____

Solve each equation. Remember to check for extraneous solutions.

1) $\sqrt{\frac{r}{8}} = \sqrt{2r - 105}$

2) $k = -1 + \sqrt{2k + 5}$

3) $\sqrt{x - 10} = 9$

4) $\sqrt{1 - a} = \sqrt{-7 - 2a}$

5) $-n + \sqrt{3n + 6} = -4$

6) $2\sqrt{r + 2} = 2$

7) $\sqrt{-8 - 2p} = \sqrt{-3 - p}$

8) $\sqrt{6p} - 3 = 3$

9) $\sqrt{2x + 6} = -3 + \sqrt{-3 - 4x}$

10) $x = \sqrt{4x}$

11) $\sqrt{7 - x} = \sqrt{2x - 5}$

12) $-8 = -x + \sqrt{46 - 7x}$

13) $-6 = -6 + \sqrt{-9 - k}$

14) $4 = \sqrt{6 - 2x}$

15) $9\sqrt{9 - 8m} = 63$

16) $a - 1 = \sqrt{2a - 2}$

17) $\sqrt{6r - 38} = r - 5$

18) $-2 - \sqrt{2v - 7} = \sqrt{3v + 1}$

19) $\sqrt{6x + 1} = \sqrt{7x}$

20) $-10\sqrt{14x - 3} = -90$

21) $x = \sqrt{20 - x}$

22) $\sqrt{-1 - 2v} = v$

23) $\sqrt{54 - 5v} - v = -8$

24) $6 = \sqrt{p - 5} + 4$

25) $a - 2 = \sqrt{22 - a}$

Solve each equation.

26) $343 = (26 - n)^{\frac{3}{2}}$

27) $16 = (9x)^{\frac{1}{2}} + 7$

$$28) 509 = (n + 24)^{\frac{3}{2}} - 3$$

$$29) 4 + 2x^{\frac{3}{2}} = 690$$

$$30) (2a)^{\frac{3}{2}} - 1 = 7$$

$$31) (2a + 3)^{\frac{1}{2}} = 5$$

$$32) 512 = (3n + 13)^{\frac{3}{2}}$$

$$33) (125n)^{\frac{1}{3}} + 10 = 15$$

$$34) 35 = b^{\frac{3}{2}} + 8$$

$$35) -6 = -2(b - 8)^{\frac{1}{2}}$$

$$36) -1 + (n + 26)^{\frac{1}{2}} = 2$$

$$37) (3 - v)^{\frac{3}{2}} = 125$$

$$38) 8 + n^{\frac{1}{2}} = 12$$

$$39) (3k + 123)^{-\frac{1}{2}} = \frac{1}{6}$$

$$40) 10 + 4x^{\frac{1}{2}} = 42$$

$$41) \left(\frac{n}{2}\right)^{\frac{5}{3}} = 243$$

$$42) 8 = (2n + 28)^{\frac{1}{2}}$$

$$43) \frac{33}{4} = n^{-\frac{1}{3}} + 8$$

$$44) -4p^{\frac{1}{2}} + 6 = -22$$

$$45) (1 - 5k)^{\frac{1}{2}} = 6$$

Solving Radical Equations

Date _____ Period _____

Solve each equation. Remember to check for extraneous solutions.

$$1) \sqrt{\frac{r}{8}} = \sqrt{2r - 105}$$

{56}

$$2) k = -1 + \sqrt{2k + 5}$$

{2}

$$3) \sqrt{x - 10} = 9$$

{91}

$$4) \sqrt{1 - a} = \sqrt{-7 - 2a}$$

{-8}

$$5) -n + \sqrt{3n + 6} = -4$$

{10}

$$6) 2\sqrt{r + 2} = 2$$

{-1}

$$7) \sqrt{-8 - 2p} = \sqrt{-3 - p}$$

{-5}

$$8) \sqrt{6p} - 3 = 3$$

{6}

$$9) \sqrt{2x + 6} = -3 + \sqrt{-3 - 4x}$$

{-3}

$$10) x = \sqrt{4x}$$

{0, 4}

$$11) \sqrt{7 - x} = \sqrt{2x - 5}$$

{4}

$$12) -8 = -x + \sqrt{46 - 7x}$$

No solution.

$$13) -6 = -6 + \sqrt{-9 - k}$$

{-9}

$$14) 4 = \sqrt{6 - 2x}$$

{-5}

$$15) 9\sqrt{9 - 8m} = 63$$

{-5}

$$16) a - 1 = \sqrt{2a - 2}$$

{1, 3}

$$17) \sqrt{6r - 38} = r - 5$$

{7, 9}

$$18) -2 - \sqrt{2v - 7} = \sqrt{3v + 1}$$

No solution.

$$19) \sqrt{6x + 1} = \sqrt{7x}$$

{1}

$$20) -10\sqrt{14x - 3} = -90$$

{6}

$$21) x = \sqrt{20 - x}$$

{4}

$$22) \sqrt{-1 - 2v} = v$$

No solution.

$$23) \sqrt{54 - 5v} - v = -8$$

{10}

$$24) 6 = \sqrt{p - 5} + 4$$

{9}

$$25) a - 2 = \sqrt{22 - a}$$

{6}

Solve each equation.

$$26) 343 = (26 - n)^{\frac{3}{2}}$$

{-23}

$$27) 16 = (9x)^{\frac{1}{2}} + 7$$

{9}

$$28) 509 = (n + 24)^{\frac{3}{2}} - 3$$

{40}

$$30) (2a)^{\frac{3}{2}} - 1 = 7$$

{2}

$$32) 512 = (3n + 13)^{\frac{3}{2}}$$

{17}

$$34) 35 = b^{\frac{3}{2}} + 8$$

{9}

$$36) -1 + (n + 26)^{\frac{1}{2}} = 2$$

{-17}

$$38) 8 + n^{\frac{1}{2}} = 12$$

{16}

$$40) 10 + 4x^{\frac{1}{2}} = 42$$

{64}

$$42) 8 = (2n + 28)^{\frac{1}{2}}$$

{18}

$$44) -4p^{\frac{1}{2}} + 6 = -22$$

{49}

$$29) 4 + 2x^{\frac{3}{2}} = 690$$

{49}

$$31) (2a + 3)^{\frac{1}{2}} = 5$$

{11}

$$33) (125n)^{\frac{1}{3}} + 10 = 15$$

{1}

$$35) -6 = -2(b - 8)^{\frac{1}{2}}$$

{17}

$$37) (3 - v)^{\frac{3}{2}} = 125$$

{-22}

$$39) (3k + 123)^{-\frac{1}{2}} = \frac{1}{6}$$

{-29}

$$41) \left(\frac{n}{2}\right)^{\frac{5}{3}} = 243$$

{54}

$$43) \frac{33}{4} = n^{-\frac{1}{3}} + 8$$

{64}

$$45) (1 - 5k)^{\frac{1}{2}} = 6$$

{-7}