

Solving Review (Square Roots and Factoring) WS

Solve each equation by taking square roots. Give your answers as integers or as reduced fractions (no decimals).

1) $a^2 = 1$

$$\sqrt{a^2} = \pm\sqrt{1}$$

$$a = -1, a = 1$$

2) $p^2 = 9$

$$\sqrt{p^2} = \pm\sqrt{9}$$

$$p = -3, p = 3$$

3) $4p^2 = 1$
 $\frac{4}{4} \frac{p^2}{4} = \frac{1}{4}$

$$p^2 = \frac{1}{4}$$

$$\sqrt{p^2} = \pm\sqrt{\frac{1}{4}} = \pm\frac{\sqrt{1}}{\sqrt{4}}$$

$$p = -\frac{1}{2}, p = \frac{1}{2}$$

4) $25p^2 = 1$

$$p = -\frac{1}{5}, p = \frac{1}{5}$$

5) $(p-4)^2 = 81$

$$\sqrt{(p-4)^2} = \pm\sqrt{81}$$

$$\begin{array}{r} p-4 = -9 \\ +4 \quad +4 \\ \hline p = -5 \end{array} \quad \begin{array}{r} p-4 = 9 \\ +4 \quad +4 \\ \hline p = 13 \end{array}$$

$$p = -5, p = 13$$

6) $(x+7)^2 = 100$

$$p = -17, p = 3$$

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7) $(m-3)^2 + 7 = 11$

$-7 = -7$

$(m-3)^2 = 4$

$\sqrt{(m-3)^2} = \pm\sqrt{4}$

$m-3 = -2, m-3 = 2$
 $\begin{array}{cc} +3 & +3 \\ \hline m & = 1, m = 5 \end{array}$

$m = 1, m = 5$

8) $(r-10)^2 + 5 = 54$

$-5 = -5$

$r = 3, r = 17$

Solve each equation by factoring. Give your answers as integers or as reduced fractions (no decimals).

9) $n^2 = 16 + 6n$
 $\begin{array}{ccc} -6n & -16 & -6n \\ \hline n^2 & -6n & -16 \end{array}$

n	n ²	-6n	-16

10) $x^2 - 32 = -4x$

$n^2 - 6n - 16 = 0$

$(n+2)(n-8) = 0$
 $n+2=0, n-8=0$
 $\begin{array}{cc} -2 & -2 \\ \hline n & = -2, n = 8 \end{array}$

$x = 4, x = -8$

11) $n^2 + 7n = -10$

12) $x^2 - 10x = -16$

$n = -2, n = -5$

$x = 2, x = 8$

13) $21n^2 = 25n + 56$
 $\begin{array}{ccc} -25n & -56 & -25n - 56 \\ \hline 21n^2 & -25n & -56 \end{array}$

21n ²	-56
n, 21n	-1, 56
3n, 7n	1, -56
	-2, 28
	2, -28
	-4, 14
	4, -14
	-7, 8
	7, -8

14) $14n^2 = 3 + 19n$

$(3n-7)(7n+8) = 0$
 $3n-7=0, 7n+8=0$
 $\begin{array}{cc} +7 & +7 \\ \hline 3n & = \frac{7}{3} \end{array}$
 $\begin{array}{cc} -8 & -8 \\ \hline 7n & = -\frac{8}{7} \end{array}$
 $n = \frac{7}{3}, n = -\frac{8}{7}$

3n	21n ²	+24n	-25n

$n = -\frac{1}{7}, n = \frac{3}{2}$