

A2.A.22: Solving Radicals 4: Solve radical equations

- 1 The solution set of the equation $\sqrt{x+1} + 5 = 0$ is
 - 1) \emptyset
 - 2) $\{24\}$
 - 3) $\{-26\}$
 - 4) $\{0\}$

- 2 The solution set of the equation $\sqrt{x+6} = x$ is
 - 1) $\{-2, 3\}$
 - 2) $\{-2\}$
 - 3) $\{3\}$
 - 4) $\{ \}$

- 3 What is the solution set of the equation $\sqrt{9x+10} = x$?
 - 1) $\{-1\}$
 - 2) $\{9\}$
 - 3) $\{10\}$
 - 4) $\{10, -1\}$

- 4 The solution set of the equation $\sqrt{2x+15} = x$ is
 - 1) $\{5, -3\}$
 - 2) $\{5\}$
 - 3) $\{-3\}$
 - 4) $\{ \}$

- 5 What is the solution set of $\sqrt{4x+21} = x$?
 - 1) $\{-3\}$
 - 2) $\{-3, 7\}$
 - 3) $\{7\}$
 - 4) $\{ \}$

- 6 What is the solution set of $\sqrt{2-x} = x$
 - 1) $\{1\}$
 - 2) $\{-2\}$
 - 3) $\{-2, 1\}$
 - 4) $\{-1, 2\}$

- 7 What is the solution set of the equation $x = 2\sqrt{2x-3}$?
 - 1) $\{ \}$
 - 2) $\{2\}$
 - 3) $\{6\}$
 - 4) $\{2, 6\}$

- 8 The solution set of the equation $\sqrt{2x-4} = x-2$ is
 - 1) $\{-2, -4\}$
 - 2) $\{2, 4\}$
 - 3) $\{4\}$
 - 4) $\{ \}$

- 9 What is the solution set of the equation $\sqrt{x+1} = x-1$?
 - 1) $\{ \}$
 - 2) $\{0, 3\}$
 - 3) $\{3\}$
 - 4) $\{0\}$

- 10 For the equation $\sqrt{x+21} = x+1$, the solution set is
- | | |
|-------------|----------------|
| 1) $\{ \}$ | 3) $\{-5, 4\}$ |
| 2) $\{-5\}$ | 4) $\{4\}$ |
- 11 The solution set of $\sqrt{3x+16} = x+2$ is
- | | |
|----------------|-------------|
| 1) $\{-3, 4\}$ | 3) $\{3\}$ |
| 2) $\{-4, 3\}$ | 4) $\{-4\}$ |
- 12 What is the solution set for the equation $\sqrt{5x+29} = x+3$?
- | | |
|-------------|----------------|
| 1) $\{4\}$ | 3) $\{4, 5\}$ |
| 2) $\{-5\}$ | 4) $\{-5, 4\}$ |
- 13 What is the solution set for $\sqrt{x+11} + 1 = x$
- | | |
|----------------|-------------|
| 1) $\{5, -2\}$ | 3) $\{-2\}$ |
| 2) $\{5\}$ | 4) $\{ \}$ |
- 14 What is the solution set of the equation $\sqrt{5-x} + 3 = x$?
- | | |
|---------------|------------|
| 1) $\{1\}$ | 3) $\{ \}$ |
| 2) $\{4, 1\}$ | 4) $\{4\}$ |
- 15 The solution set of the equation $\sqrt{x+3} = 3-x$ is
- | | |
|------------|---------------|
| 1) $\{1\}$ | 3) $\{1, 6\}$ |
| 2) $\{0\}$ | 4) $\{2, 3\}$ |
- 16 The solution set of the equation $\sqrt{y-2} = 2-y$ is
- | | |
|---------------|------------|
| 1) $\{2, 3\}$ | 3) $\{3\}$ |
| 2) $\{2\}$ | 4) ϕ |
- 17 The equation $\sqrt{x+6} + x = 6$ has for its roots
- | | |
|---------------------|------------------|
| 1) neither 3 nor 10 | 3) 3, only |
| 2) 10, only | 4) both 3 and 10 |
- 18 What is the solution set of the equation $y = 2 + \sqrt{y^2 - 12}$?
- | | |
|------------|----------------|
| 1) $\{ \}$ | 3) $\{-4, 4\}$ |
| 2) $\{2\}$ | 4) $\{4\}$ |

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Answer Section

1 ANS: 1 REF: 068729siii

2 ANS: 3 REF: 080104b

3 ANS: 3 REF: 010305b

4 ANS: 2 REF: 019933siii

5 ANS: 3

$\sqrt{4x+21} = x$. $x = -3$ is an extraneous solution.

$$4x + 21 = x^2$$

$$x^2 - 4x - 21 = 0$$

$$(x - 7)(x + 3) = 0$$

$$x = 7$$

REF: 061018b

6 ANS: 1 REF: 010329siii

7 ANS: 4 REF: 060214b

8 ANS: 2

$$\sqrt{2x-4} = x-2$$

$$2x - 4 = x^2 - 4x + 4$$

$$0 = x^2 - 6x + 8$$

$$0 = (x - 4)(x - 2)$$

$$x = 4, 2$$

REF: 061406a2

9 ANS: 3 REF: 018726siii

10 ANS: 4 REF: 089931siii

11 ANS: 3

$3x + 16 = (x + 2)^2$. -4 is an extraneous solution.

$$3x + 16 = x^2 + 4x + 4$$

$$0 = x^2 + x - 12$$

$$0 = (x + 4)(x - 3)$$

$$x = -4 \quad x = 3$$

REF: 061121a2

12 ANS: 1

 $5x + 29 = (x + 3)^2$. $(-5) + 3$ shows an extraneous solution.

$$5x + 29 = x^2 + 6x + 9$$

$$0 = x^2 + x - 20$$

$$0 = (x + 5)(x - 4)$$

$$x = -5, 4$$

REF: 061213a2

13 ANS: 2

REF: 019425siii

14 ANS: 4

REF: 069625siii

15 ANS: 1

REF: 061018a2

16 ANS: 2

REF: 088726siii

17 ANS: 3

REF: 080126siii

18 ANS: 4

REF: 060915b