A2.A.22: Solving Radicals 5: Solve radical equations

1 The solution set of the equation $\sqrt{x+1}+5=0$ is

2 The solution set of the equation $\sqrt{x+6}=x$ is

3 What is the solution set of the equation $\sqrt{9x+10}=x$?

4 The solution set of the equation $\sqrt{2x+15}=x$ is

5 What is the solution set of $\sqrt{4x+21}=x$?

6 What is the solution set of $\sqrt{2-x}=x$

7 What is the solution set of the equation $x=2\sqrt{2x-3}$?

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

9 What is the solution set of the equation $\sqrt{x+1}=x-1$?

10 For the equation $\sqrt{x+21}=x+1$, the solution set is

11 The solution set of $\sqrt{3x+16}=x+2$ is

12 What is the solution set for the equation $\sqrt{5x+29}=x+3$?

13 What is the solution set for $\sqrt{x+11}+1=x$

14 What is the solution set of the equation $\sqrt{5-x}+3=x$?

15 The solution set of the equation $\sqrt{x+3}=3-x$ is

16 The solution set of the equation $\sqrt{y-2}=2-y$ is

17 The equation $\sqrt{x+6}+x=6$ has for its roots

18 What is the solution set of the equation $y=2+\sqrt{y^2-12}$?

A2.A.22: Solving Radicals 5: Solve radical equations
Answer Section

1 ANS:
ϕ

REF: 068729siii

2 ANS:
{3}

REF: 080104b

3 ANS:
{10}

REF: 010305b

4 ANS:
{5}

REF: 019933siii

5 ANS:
{7}

$\sqrt{4x+21} = x$. $x = -3$ 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:
$\{2, 6\}$

REF: 060214b

8 ANS:
$\{2, 4\}$

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

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

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

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

$x = 4, 2$

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.

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

$0 = x^2+x-12$

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

$x = -4 \;\; x = 3$

REF: 061121a2

12 ANS:
$\{4\}$

$5x+29 = (x+3)^2$. $(-5)+3$ 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:
$\{5\}$

REF: 019425siii

14 ANS:
{4}

REF: 069625siii

15 ANS:
{1}

REF: 061018a2

16 ANS:
{2}

REF: 088726siii

17 ANS:
3, only

REF: 080126siii

18 ANS:
{4}

REF: 060915b