

## PRE-AP ALGEBRA 2

## 3C.4 CLASSWORK

Solve the indicated radical equations for real  $x$ . Be sure to check your solutions in the original equation.

1)  $\sqrt{x+5} = -3$

no solution

a square root cannot be negative.

2)  $\sqrt{x+5} = 3$

$$x+5=9$$

$$x=4 \quad \checkmark$$

3)  $\sqrt{x+5} = 3x-8$

$$x+5 = (3x-8)^2$$

$$x+5 = 9x^2 - 48x + 64$$

$$9x^2 - 49x + 59 = 0$$

$$x = \frac{49 \pm \sqrt{(-49)^2 - 4(9)(59)}}{2(9)} =$$

$$= \frac{49 \pm \sqrt{277}}{18}$$

$$x = \frac{1}{18} (49 - \sqrt{277}) = 1.2976 \quad \times$$

$$x = \frac{1}{18} (49 + \sqrt{277}) = 3.6469 \quad \checkmark$$

4)  $\sqrt{x+5} + \sqrt{x+8} = 3$

$$x+5 + 2\sqrt{x+5}\sqrt{x+8} + x+8 = 9$$

$$2x+13 + 2\sqrt{(x+5)(x+8)} = 9$$

$$2\sqrt{x^2+13x+40} = -2x-4$$

$$\sqrt{x^2+13x+40} = -x-2$$

$$x^2+13x+40 = x^2+4x+4$$

$$9x = -36$$

$$x = -4 \quad \checkmark$$