Worksheet - Radical Expressions and Equations

1. Solve the following equations. Remember to check for extraneous roots.

   a. $\sqrt{2x-1}+\sqrt{x-1}=1$

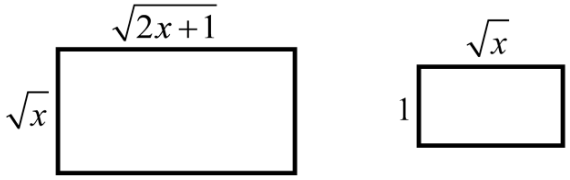
   b. $\sqrt{x+1}+\sqrt{3x+1}=2$

   c. $\sqrt{3x-2}-2\sqrt{x}=1$

   d. $2\sqrt{x+6}-\sqrt{2x+10}=2$

   e. $\sqrt{3x-2}-1=\sqrt{2x-3}$

2. The difference between the lengths of the diagonals of the two rectangles shown is 2 m. Algebraically determine the value of x and the dimensions of the rectangles.



ANSWERS:

1. a. x = 1 (x = 5 is extraneous)

   b. x = 0 (x = 8 is extraneous)

   c. no solution (x = 1 and x = 9 are both extraneous)

   d. x = –5, x = 3

   e. x = 2, x = 6

2. x = 8 (x = 0 is extraneous)

   dimensions of larger rectangle: $\sqrt{17}\ m \times 2\sqrt{2}\ m$

   dimensions of smaller rectangle: $2\sqrt{2}\ m \times 1\ m$