Quiz 9

29 October 2009

Show all work to support your solutions. Be sure to check your solutions.

1. (5 Points) Solve the following equation for x.

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

Solving:

$$\sqrt{x+3} = x+1$$
$$x+3 = x^2+2x+1$$
$$0 = x^2+x-2$$
$$0 = (x+2)(x-1)$$

$x+2=0$ | $x-1=0$
$x=-2$ | $x=1$

Checking:

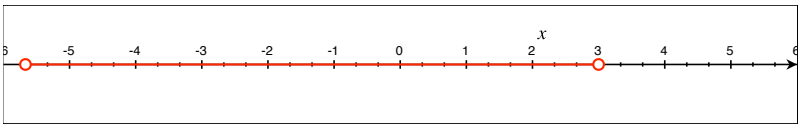
$$\sqrt{-2+3} - 1 = \sqrt{1} - 1 = 1 - 1 = 0 \neq -2$$
$$\sqrt{1+3} - 1 = \sqrt{4} - 1 = 2 - 1 = 1$$

2. (5 Points) Solve the following inequality for x.

$$|3x+4| < 13$$

$$|3x+4| = 13$$

$(3x+4) = 13$ | $-(3x+4) = 13$
$3x = 9$ | $-3x-4 = 13$
$x = 3$ | $-3x = 17$
| $x = \frac{-17}{3}$



Interval Notion: $\left(\frac{-17}{3}, 3\right)$