

**Test #1**

**Problem 1:** In problems 1-7, solve all the equations for  $x$ . Do not forget to check your results.

$$2x + 9 = 5x$$

**Problem 2:**

$$\frac{x}{x^2 - 9} = \frac{3}{x^2 - 9} - \frac{4}{x + 3}$$

**Problem 3:**

$$3x^2 + 5x + 2 = 0$$

**Problem 4:**

$$\sqrt{12 - 2x} = x - 2$$

**Problem 5:**

$$(2x + 5)^2 - 5(2x + 5) - 6 = 0$$

**Problem 6:**

$$x^4 - 10x^2 + 25 = 0$$

**Problem 7:**

$$|-x| = |1|$$

**Problem 8:** Check if the following equation has a solution and if it does, find it.

$$x^2 + 3 = 0$$

**Problem 9:** In problems 9-11 solve all inequalities on  $x$  and express your results as intervals.

$$-3 < \frac{2x - 1}{4} < 0$$

**Problem 10:**

$$|2x| > 6$$

**Problem 11:**

$$|2x + 5| \leq 7$$

**Problem 12:** Plot points A(4,3) and B(3,-2) on coordinate axes, find the distance and the midpoint between points A and B.

**Problem 13:** Consider the following equation:

$$y - 2x^3 = 0.$$

List intercepts and test for symmetry.

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