

## Algebra and Calculus Worksheet 2

9/21/15

1. **Section 1.5 - 59**

Find all real solutions of the equation by completing the square.

$$x^2 - 6x - 11 = 0$$

2. **Section 1.5 - 71**

Find all real solutions of the quadratic equation.

$$3x^2 + 6x - 5 = 0$$

3. **Section 1.5 - 113**

Find all real solutions of the quadratic equation.

$$|3x + 5| = 1$$

4. **Section 1.7 - 49**

Ali paints with watercolors on a sheet of paper 20 in. wide by 15 in. high. He then places this sheet on a mat so that a uniformly wide strip of the mat shows all around the picture. The perimeter of the mat is 102 in. How wide is the strip of the mat showing around the picture?

5. **Section 1.7 - 91**

A 10-ft-long stem of bamboo is broken in such a way that its tip touches the ground 3 ft from the base of the stem. What is the height of the break?

**6. Section 1.8 - 53**

Solve the nonlinear inequality. Express the solution using interval notation and graph the solution set.

$$(x - 4)(x + 2)^2 < 0$$

**7. Section 1.8 - 69**

Solve the nonlinear inequality. Express the solution using interval notation, and graph the solution set.

$$\frac{6}{x-1} - \frac{6}{x} \geq 1$$

**8. Section 1.8 - 83**

Solve the nonlinear inequality. Express the solution using interval notation, and graph the solution set.

$$|3x - 2| \geq 5$$

**9. Section 1.10 - 49**

Find an equation of the line that satisfies the given conditions.

Through  $(1, 7)$ ; perpendicular to the line passing through  $(2, 5)$  and  $(-2, 1)$ .

**10. Section 1.10 - 75**

The equations of two lines are given. Determine whether the lines are parallel, perpendicular, or neither.

$$-3x + 4y = 4; 4x + 3y = 5$$