

**MTH 138 Practice Quiz #3**

(1) Solve for  $x$ :  $(2x - 11)(5 + x)(3 - x) < 0$

(2) Find all points with coordinates  $(a, a)$  that are a distance 3 from the point  $(-2, 1)$ .

(3) The three points  $(0, 2)$ ,  $(4, -2)$ , and  $(11, 5)$  form a right triangle. Compute the area of this triangle.

(4) Write an algebraic condition for points  $(x, y)$  to be on the vertical line passing through the point  $(3, 5)$ .

(5) Given  $(1, 5)$  and  $(5, 7)$  as the two endpoints of a diameter of a circle, find an equation for this circle.

(6) Find the center and radius of the circle given by  $x^2 + y^2 - 4x + 10y = 0$ .

**Answers:**

(1)  $-5 < x < 3$  or  $\frac{11}{2} < x$  OR  $(-5, 3) \cup \left(\frac{11}{2}, \infty\right)$

(2)  $(1, 1), (-2, -2)$

(3) 28

(4)  $x = 3$

(5)  $(x - 3)^2 + (y - 6)^2 = 5$

(6) Center:  $(2, -5)$ ; radius =  $\sqrt{29}$