

**Algebra 2**

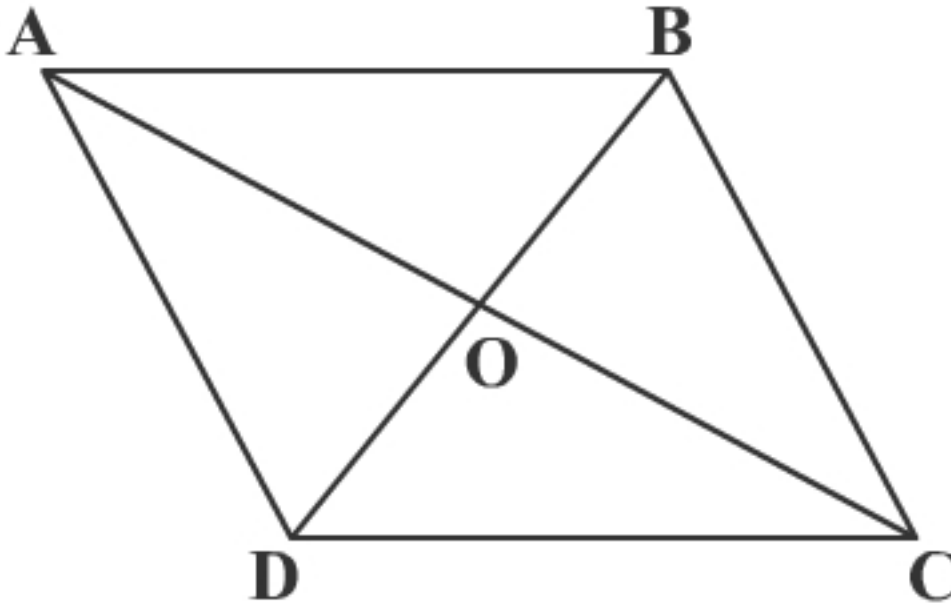
**Writing Assignment: Algebra of Quadrilaterals**

**Each problem is worth 5 Points**

**Total Points: 50**

Solve each system of equations. Show your work.

1. Use the following image for problems (a) – (f). ABCD is a parallelogram.



(a) Angle DAB measures  $(4x - 2)^\circ$  and angle BCD measures  $47^\circ$ . Find  $x$ .

(b) Angle ADC measures  $(3x)^\circ$  and angle BCD measures  $(5x)^\circ$ . Find  $x$ .

(c) Side  $AB = 3x - 5$  and side  $DC = x + 10$ . Find  $x$ .

(d) Side  $AD = 4x$  and side  $BC = 3x + 20$ . Find  $x$ .

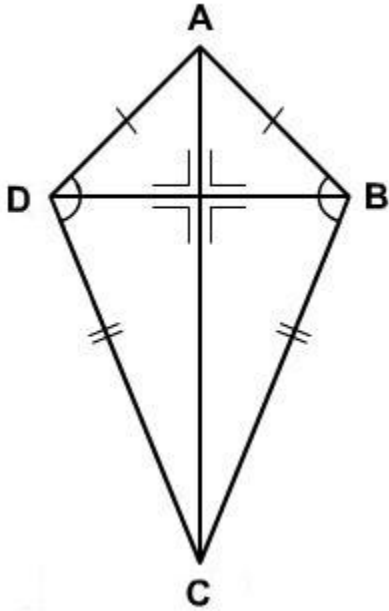
(e) Angle  $ABC$  measures  $40^\circ$  and angle  $BCD$  measures  $(2x - 1)^\circ$ . Find  $x$ .

(f) If  $DO = 3x - 2$  and  $OB = 34$ , find  $x$ .

2.  $ABCD$  is a rectangle. Angle  $A$  measures  $(4x - 15)^\circ$ . Find  $x$ .

3.  $ABCD$  is an isosceles trapezoid with base  $\overline{DC}$ . If angle  $D$  measures  $65^\circ$  and angle  $C$  measures  $(5x)^\circ$ , find  $x$ .

4. ABCD is a kite. Answer (a) and (b) using the following image.



(a) Side  $DA = 3x - 8$  and side  $AB = 28$ . Find  $x$ .

(b) Find the lengths of side  $DA$ , given the information in (a).