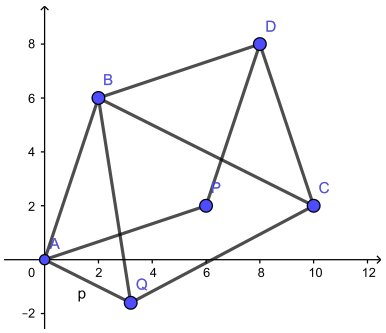
GEOMETRY
DR. PAUL L. BAILEY

Activity 0401a
April 1, 2021

Name:

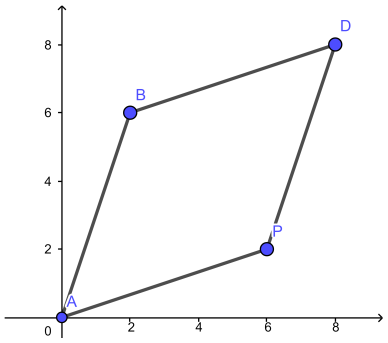
Problem 1. (Bonus - Coordinate Puzzle)
Let $A = (0, 0)$, $B = (2, 6)$, $C = (10, 2)$, and $D = (8, 8)$.



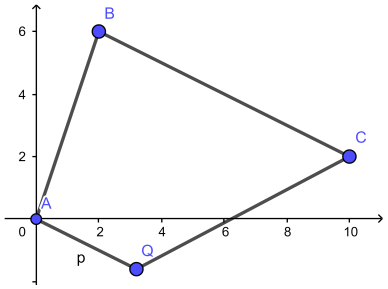
On your exam, you were asked to find P and Q such that $ABDP$ is a rhombus, $ABCQ$ is a trapezoid, and $BDCQ$ is a kite.

Let $P = (6, 2)$ and $Q = \left(\frac{16}{5}, -\frac{8}{5}\right)$.

(a) Show that $ABDP$ is a rhombus, by computing the length of each side.



(b) Show that $ABCQ$ is a trapezoid, by showing that exactly two sides are parallel.



(c) Show that $BDCQ$ is a kite, by showing $\overline{BC} \perp \overline{DQ}$ and $BC < DQ$.