MATH 402 Worksheet 8
Friday 4/13/18

Definition 1. A *Saccheri quadrilateral ABCD* with congruent sides AC and BD, such that both sides are perpendicular to the base AB. The *midline* is the line segment joining the midpoint of AB to the mid point of CD.

Exercise 1. Show that the top angles of a Saccheri quadrilateral are congruent and that the midline intersects AB and CD are right angles.

Exercise 2. Let $ABCD$ Be a quadrilateral so that the sides AC and BD intersect AB at right angles, but so that the sides are not congruent. Show that the angle at C is greater than the angle at D if and only if $AC < BD$.

Exercise 3. Let $ABCD$ be a Saccheri quadrilateral. Let P be a point on the segment CD an let PQ be perpendicular to AB. Let α be the angle at A (which is equal to the angle at D). Show that

    (1) If $PQ < BD$ then α is acute,
    (2) If $PQ = BD$, then α is a right angle, and
    (3) If $PQ > BD$, then α is obtuse.