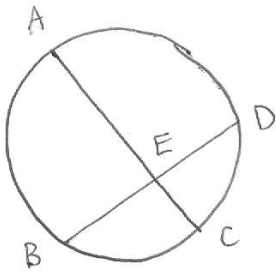


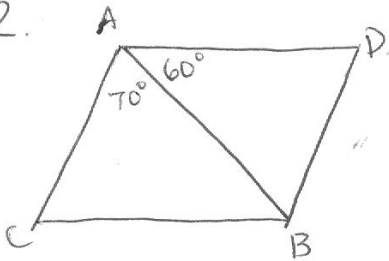
# Homework 2 - Geometry

1.



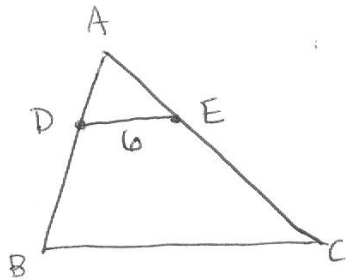
IF  $\widehat{AB}$  measures  $a$  degrees and  $\widehat{CD}$  measures  $b$  degrees, show that  $\angle AEB = \frac{a+b}{2}$ . (Do not assume the formula is already true! This is what you need to prove using other facts about circles, lines, and/or triangles)

2.



$\triangle ABC \cong \triangle BAD$ . IF  $\angle CAB = 70^\circ$  and  $\angle BAD = 60^\circ$ , what is  $\angle ADB$ ?

3.



D and E are points on sides AB and AC of  $\triangle ABC$ , so that DE and BC are parallel. IF  $AB = 3 \cdot AD$ , and  $DE = 6$ , what is the length of BC?

4. Points A, B, and C are on a circle. The line tangent to the circle at A and the secant BC intersect at P, with B lying between P and C. IF  $BC = 20$  and  $PA = 10\sqrt{3}$ , find PB.  
(Hint: draw a picture. What theorem can you use to solve this problem?)