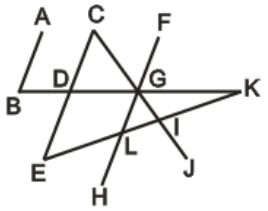
First name: _____ Last name: _____ Student ID: _____

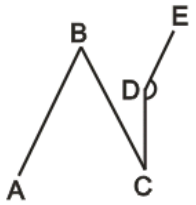
Geometry 2 Homework

Basic problems:

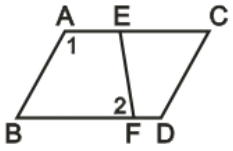
1. $\overline{AB} \| \overline{CE} \| \overline{FH}$, $\angle B = 68^0$, $\angle K = 28^0$, and $\overline{CJ}$ bisects $\angle BGF$. Find $\angle E$ and $\angle FGK$.



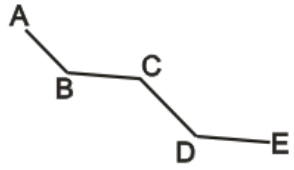
2. If $\overline{AB} \| \overline{DE}$, $\angle B = 62^0$ and $\angle C = 30^0$, what is the measure of $\angle D$?



3. In parallelogram ABCD, $\angle 1 = 99^0$ and $\angle 2 = 80^0$. Find $\angle C + \angle D - \angle FEC$.



4. $\overline{AB} \| \overline{CD}$, $\overline{BC} \| \overline{DE}$, $\angle ABC = (x^2 + 5x)$, and $\angle CDE = (7x + 80^0)$. Find x.



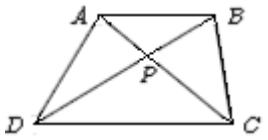
Challenge problems:

1. What is the angle between the hour hand and minute hand of a clock face at 2:25?

2. To construct a circle that circumscribes a triangle one finds its center by locating the intersection of which two lines?
(A) Two medians (B) Perpendicular bisectors of two sides
(C) Bisectors of two angles (D) Two altitudes (E) None of the above

3. An equilateral triangle is inscribed in a circle. Each side of the triangle has length x. What is the area of the circle?

4. Given $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, AB = 9, and CD = 12. If the area of triangle CPD is 64, then the area of triangle APB is?



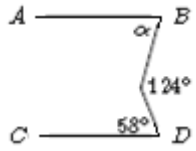
5. Three circles are mutually tangent externally. Their centers form a triangle whose sides are of lengths 8, 9, and 13. Find the total area of the three circles.

6. The length of a certain rectangle is quadrupled and the width is tripled. What is the ratio of the area of the new enlarged rectangle to the original rectangle?

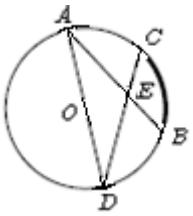
7. An equilateral triangle and a regular hexagon have equal perimeters. What is the area of the triangle, if the area of the hexagon is 120?

8. The larger angles of a rhombus are twice the smaller angle of the rhombus. If the shorter diagonal is 20, find the perimeter of the rhombus.

9. Given that $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, find the number of degrees in angle $\angle\alpha$.

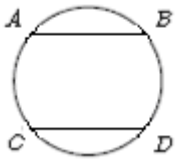


10. Given that angle m$\angle$A = 30°, m$\angle$D = 28°, and $\overline{AD}$ is a diameter of the circle, find the number of degrees in arc $\overset{\frown}{BC}$.



11. Given that $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, which of the following is true?

I. arc AC = arc BD II. arc AB = arc CD III. arc AB = arc BD IV. arc AB = arc AC



12. What is the number of different squares which can be inscribed in a given equilateral triangle?