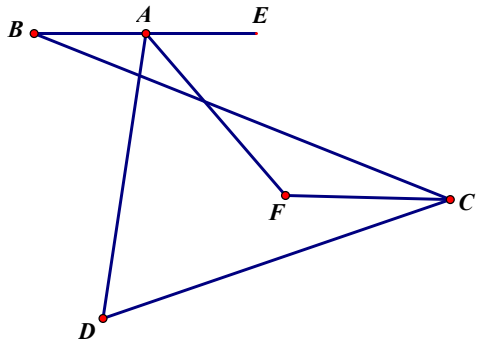
Part 1. Fill in the blanks. (8' × 4 = 32')

1. $\left|\frac{1}{3}-\frac{1}{2}\right|\times 36-(-2)^2+(3-\pi)^0$ = _____.

2. Given that $A=x^2+xy-2x-3$, $B=-x^2+3xy-9$. If $3A-B$ is -2, then the value for the expression $x^2-\frac{3}{2}x+\frac{5}{2}$ = _____.

3. If real numbers x,y satisfy $4x+y=9$ and $2x-y=a$ with $x+y\geq 0$, then the maximum value of a = _____.

4. As shown in the figure below, $\angle B=26°$, $\angle D=62°$, the angle bisectors of $\angle DAE$ and $\angle BCD$ cross at point F, then the degree measure of $\angle AFC$ = _____°.



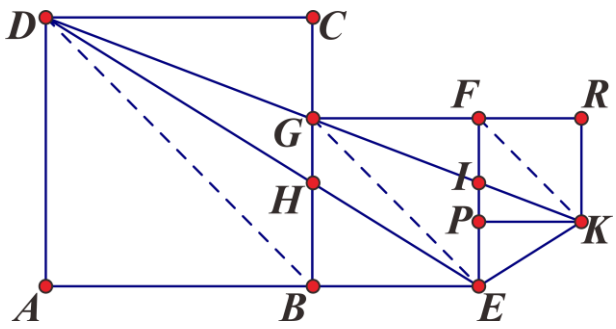
Part 2. Fill in the blanks. (10' × 4 = 40')

5. If a positive integer n satisfy the condition that when 66, 78 and 42 are divided by n, the resulting remainders are all equal and nonzero, then the sum of all possible values of n is _____.

6. The minimum value of algebraic expression $4x^2-12xy+10y^2+6y+14$ is _____.

7. The minimum value of $|x-1|+2|x-2|+3|x-3|+\cdots+100|x-100|$ is _____.

8. Three squares $ABCD$, $BEFG$, $PKRF$ are placed as shown below, point G is on the line segment DK, and square $BEFG$ has a side length of 2. Then the area of $\triangle DEK$ is _____.



Part 3. Fill in the blanks. (14' × 3 = 42')

9. From a convex n-gon (a polygon with n sides), several non-adjacent interior angles are picked, and the maximum possible value for the sum of these interior angles is 600°, then the sum of all the possible values of n is _____.

10. A 3-digit integer is written as $\overline{abc}$, where a,b,c are three distinct numbers. When $\overline{abc}$ is divided by 2-digit integers $\overline{bc},\overline{ac}$ respectively, the resulting remainders are both a, then the sum of all the possible $\overline{abc}$ is _____.

11. Two table tennis players, A and B, are competing. The current score is tied at 5-5. It is known that throughout the entire match, player B has only led player A once. Then the number of different possible score progressions is _____.

Part 4. Answer the following questions. Show all steps clearly. (18' × 2 = 36')

12. A real number $a > 0$, b is the decimal part of a, and $a^2 + b^2 = 2024$, find the value of $a^3 - b^3$.

13. From $1, 2, 3, \cdots, 1000$, n numbers are picked. These n numbers can be arranged in a row such that the product of every three adjacent numbers does not exceed 2000. Prove: $n \leq 34$.