bruh

Prithuj Sarkar

§1 Problem 1

The answer is NO. It is clear that number is divisible by 6, because of $\pmod 4$ the last digit must be 0 so 5 divides the number. Now because of $\pmod{25}$ the second last digit must also be zero.

§2 Problem 3

Let $T = \overrightarrow{AD} \cap \overrightarrow{BC}$, the angle condition gives $\angle ATB = 60^\circ$. Note that $FE \parallel AD$ and $GE \parallel BC$ and both lengths are equal by midpoint theorem, but the parallelism also gives $\angle FEG = \angle ATB = 60^\circ$ so $\triangle GEF$ is equilateral.

§3 Problem 4

$$Q(x) - \{Q(x)\} = R(x) - \{R(x)\} \iff Q(x) - R(x) = \{Q(x)\} - \{R(x)\}$$

This means that $Q-R < 1$ and $R-Q < 1$ so $|Q-R|$ is bounded above by 1 but that means $Q = P + R$ where P is a constant with magnitude less that one. If $P > 0$, by continuity there exist some x such that $R(x) + P \in \mathbb{Z}$ but $R(x)$ is not so $\lfloor R(x) \rfloor = \lfloor R(x) + P \rfloor - 1$ a contradiction, if $P < 0$ then similarly for some large x $R(x) \in \mathbb{Z}$ but $R(x) + P$ is not so $\lfloor R(x) + P \rfloor = \lfloor R(x) \rfloor - 1$ another contradiction. Thus all equal polynomials work.

§4 Problem 5

Note that $\angle PYZ = \angle AYQ = \angle PQC - \angle YAC = B/2$ and similarly $\angle PZY = C/2$ so if X is a point such that P is the incenter of XYZ then $\angle YXP = \angle ZXP = A/2$ so $\angle YPX = \pi - A/2 - B/2 = \pi - (\pi/2 - C/2) = \angle YPB$ so $B - X - P$ and we are done.

Claim (yapper) – hi

Theorem (Hall heroult)
hellow

hello 𝔟 yapper pro max hmm lots of things new in mac