Contest # 2

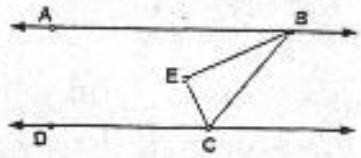
Nassau County Interscholastic Mathematics League

Answers must be exact or must have 4 (or more) significant digits, correctly rounded, unless otherwise noted

1998-99

Problems 7-8. Time limit 10 minutes.

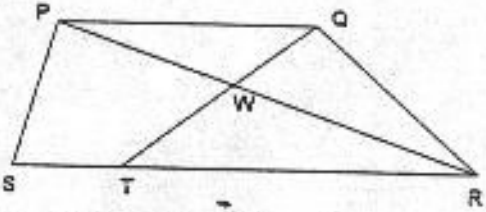
7. In the figure shown, $\overleftrightarrow{AB} \parallel \overleftrightarrow{DC}$
$\overline{BE}$ bisects $\angle ABC$
$\overline{CE}$ bisects $\angle DCB$
Find $m\angle E$.



8. Find k so that the point (4,k) is on the perpendicular bisector of the line segment whose endpoints are (1,1) and (3,5)

Problems 9-10. 10 minutes.

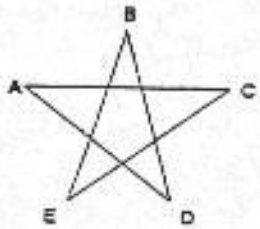
9. In the trapezoid PQRS shown, $\overline{PQ} \parallel \overline{RS}$. PQ = 10, RS = 20, ST = 5, and QT = 12.
Find the length of $\overline{QW}$.



10. Three men (Abel, Baker, and Cain) are suspects in a crime. They each made a statement, of which exactly one is true. Abel: If I'm guilty, then Baker is guilty. Baker: Cain did it. Cain: Baker lied when he said I did it. Who is guilty? [Assume that exactly one of the three men is guilty]

Problems 11-12. 11 minutes.

11. (a classic) Find the degree sum $m\angle A + m\angle B + m\angle C + m\angle D + m\angle E$



12. At Wassamata U., there are 850 students. There are 560 taking math, 435 taking science, and 220 taking both. If one student is chosen at random, find the probability that he or she will be taking neither math nor science.