MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2015
ROUND 5 GEOMETRY: SIMILARITY OF POLYGONS

ANSWERS

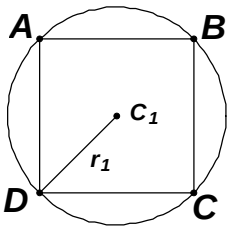
A) _____ : _____

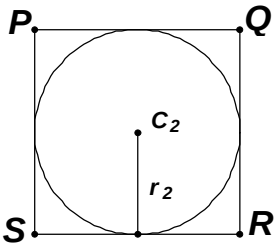
B) _____

C) _____ : _____

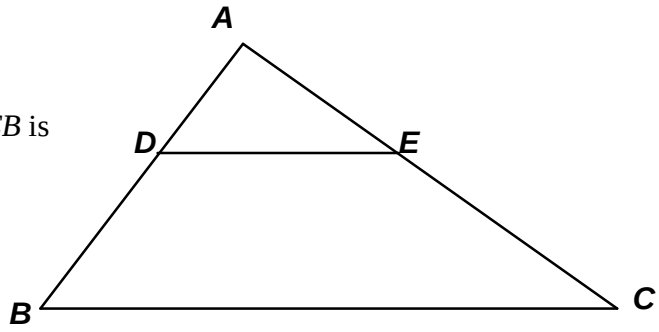
A) *ABCD* and *PQRS* are squares.
ABCD is inscribed in circle C_1 with radius $r_1 = 2$.
Circle C_2 with radius $r_2 = 2$ is inscribed in *PQRS*.

Compute the ratio of the perimeter of *ABCD* to the perimeter of *PQRS*.





B) Given: $\overline{DE} \parallel \overline{BC}$, $AD = 4$, $AE = 6$ and $DE = 8$
If the ratio of the area of ΔADE to the area of *DECB* is 4 : 21, compute *BC*.



C) *ABCD* is a rhombus.
$\overline{EF} \parallel \overline{AD}$, $\overline{BD} \cap \overline{EF} = \{P\}$, and $\dfrac{area(\Delta DPE)}{area(ADPF)} = \dfrac{1}{6}$

Compute $\dfrac{area(\Delta BPF)}{area(CEPB)}$.