MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2012
ROUND 3 PLANE GEOMETRY: AREAS OF RECTILINEAR FIGURES

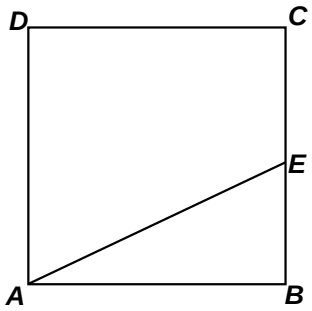
ANSWERS

A) _____ : _____

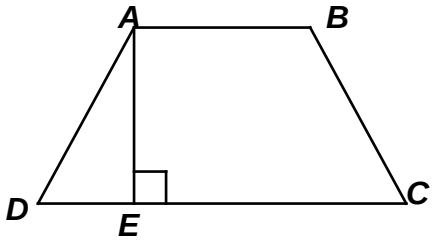
B) _____ units^2

C) _____ units^2

A) *ABCD* is a square with side 4.
The ratio of the area of *ADCE* to the area of *ABE* is 7 : 1.
Compute *BE* : *CE*.



B) In isosceles trapezoid *ABCD*, $\overline{AB} \parallel \overline{CD}$,
AB = *AE* = 12 and the perimeter = 60.
If the sides of the trapezoid have integer length,
compute the area of *ABCD*.



C) In quadrilateral *ABCD*,
$\overline{AB} \perp \overline{BC}$, $\overline{DA} \perp \overline{AC}$,
AC = 45, *AD* : *AB* = 7 : 9, and
$\frac{\text{area}(\Delta ABC)}{\text{area}(\Delta ADC)} = \frac{27}{35}$.
Compute the area of *ABCD*.
Do <u>not</u> assume *ABCD* is a trapezoid.