MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2013
ROUND 3 COORDINATE GEOMETRY OF LINES AND CIRCLES

ANSWERS

A) (_____ , _____)

B) A(____ , ____) B(____ , ____)

C) _____

A) The slope and the *y*-intercept of the line with equation $\frac{2x}{15}+\frac{y}{4}=1$ are *m* and *b* respectively. Compute the ordered pair (*m*, *b*).

B) $\overline{AB}$ is the diameter of the circle $4x^2+4y^2-12x+20y+18=0$ parallel to the *x*-axis. Compute the endpoints of *A* and *B*, given that *A* is to the left of *B*.

C) Line $\mathscr{L}$ with a slope of $-\frac{1}{2}$ passes through the point *P*(13, –2). Line $\mathscr{L}$ is tangent to a circle with center *C*(3, –2). Find the equation of this circle in the form $(x-h)^2+(y-k)^2=r^2$.