MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 – JANUARY 2009
ROUND 1 ANALYTIC GEOMETRY: ANYTHING

ANSWERS

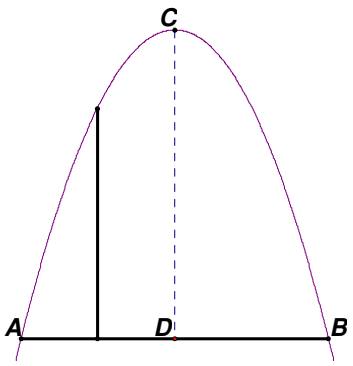
A) _____

B) _____

C) _____

A) The points $A(7, a)$ and $B(b, 1)$ lie on the hyperbola $x^2 - y^2 = 24$.
Compute the largest possible value for the distance AB.

B) A parabolic arch has a span (AB) of 12 units and a maximum height (CD) of 8 units.
Find the height of the arch $\frac{1}{4}$ of the way across the span.



C) A circle of radius 5 is tangent to $x = 3$ and $y = -2$. Let S be the sum of all possible x-intercepts.
Compute S.