

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 – MARCH 2014
ROUND 3 TRIGONOMETRY: ANYTHING**

ANSWERS

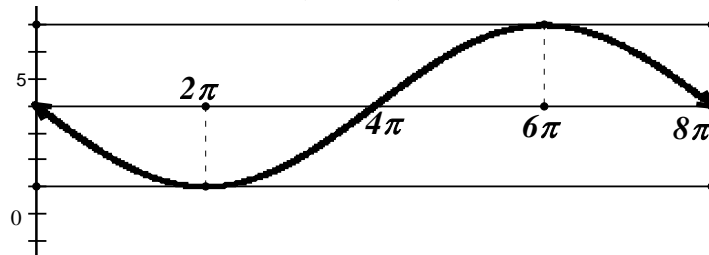
A) (_____ , _____ , _____)

B) _____

C) (_____ , _____)

A) The graph of $y = A\sin(Bx) + C$ is shown below.

Determine the ordered triple (A, B, C) .



B) Compute the degree-measure of the largest acute angle α for which $2\sin 15\alpha - 1 = 0$.

C) $(-1 - \sqrt{3}i)^{100} = A(2^B)(1 + \sqrt{3}i)$, where A and B are integers.

Compute the ordered pair (A, B) .