

**MASSACHUSETTS MATHEMATICS LEAGUE
MARCH 2006
ROUND 2 ALGEBRA 1: RATIONAL EXPONENTS/RADICALS**

ANSWERS

A) _____

B) _____

C) _____

A) If $\sqrt{2^{3^2}} + \sqrt{2^{2^3}} = a + 8\sqrt{b}$, find the ordered pair (a, b) .

B) Express the sum below as a simplified radical:

$$\frac{2}{2\sqrt{2} + \sqrt{7}} + \frac{2}{\sqrt{7} + \sqrt{6}} + \frac{2}{\sqrt{6} + \sqrt{5}} + \frac{2}{\sqrt{5} + 2} + \frac{2}{2 + \sqrt{3}} + \frac{2}{\sqrt{3} + \sqrt{2}}$$

C) Solve for x : $\frac{(1/4)^{3x}}{2(4)^7} = (8^{x+4})^x$