

Solutions for Meet 1

Individual Questions

1. $(x, y) = (2, 1)$ or $(1, 2)$. So $x^3 + y^3 = 8 + 1 = 9$

2. Work done by the people is $\frac{1}{x+12} + \frac{1}{x+2} + \frac{1}{2x} = \frac{1}{x}$ and $x = \frac{4}{3}$

3. $\sum_{i=0}^6 (x+i)^2 = 9100$, expanding the sum, this gives us $7x^2 + 42x + 91 = 9100$. Divide by 7 to get $x^2 + 6x - 1287 = (x - 33)(x + 39) = 0$, so $x = 33$.

4. Given information gives us $C + 10 = 2B$, $A - 10 = 2(B - 10)$, $A + B + C = 130$.
Solving these equations we get $A = 50, C = 50$, and $B = 30$

5. Draw and label the triangle, AC as base, legs as AB and BC.

Let $\angle B = x$ and notice $\angle BAP = x, \angle PAC = x, \angle PCA = 2x, \angle APC = 2x$.
get $5x = 180$, so $x = 36$

We

6. $\sin 80 = 2\sin 40\cos 40 = 4\sin 20\cos 20\cos 40 = 4\sin 20\sin 70\sin 50$, so $x = 50$