**Answer on Question # 70438, Physics / Other**

**Question**   A 22.00kg girl and her 95.00kg father sit on the opposite ends of 10.00m, 25.00kg uniform plank of wood. where must the fulcrum be placed to balance the plank wood?

**Solution**   The condition of balance is

$$22 \cdot x + 25 \cdot x/10 \cdot x/2 = 95 \cdot (10 - x) + 25 \cdot (10 - x)/10 \cdot (5 + x/2)$$

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$$22x + 25/20x^2 = 950 - 95x + 125 - 12.5x + 12.5x - 2.5/2x^2$$

The solution of this equation is $x \approx 9.2$. The fulcrum must be placed at distance 9.2 from girl.