# Answer on Question #61711 – Math – Algebra

## Question

A welder must construct a beam with a total length of 32 7/8 in. If he has already joined a 14 1/6 in beam with a 10 3/4in beam, find the length of a third beam needed to reach the total length.

## Solution

$$32\frac{7}{8} - \left(14\frac{1}{6} + 10\frac{3}{4}\right) = \frac{32 \cdot 8 + 7}{8} - \left(\frac{14 \cdot 6 + 1}{6} + \frac{10 \cdot 4 + 3}{4}\right) =$$

$$= \frac{256 + 7}{8} - \left(\frac{84 + 1}{6} + \frac{40 + 3}{4}\right) = \frac{263}{8} - \left(\frac{85}{6} + \frac{43}{4}\right)$$

$$= |the\ least\ common\ multiplier\ of\ 8, 6, 4\ is\ 24\ | =$$

$$= \frac{263 \cdot 3}{8 \cdot 3} - \left(\frac{85 \cdot 4}{6 \cdot 4} + \frac{43 \cdot 6}{4 \cdot 6}\right) = \frac{789}{24} - \left(\frac{340}{24} + \frac{258}{24}\right) = \frac{789}{24} - \frac{598}{24} = \frac{789 - 598}{24} =$$

$$= \frac{191}{24} = \frac{168 + 23}{24} = \frac{168}{24} + \frac{23}{24} = 7 + \frac{23}{24} = 7\frac{23}{24}\ (in.)$$

**Answer:** $7\frac{23}{24}$ in.