# Chapter # 2 Part # 2

1 ) How many truck loads of truck hauling an average volume of 6 LCY would be required to haul 1 million CCY of problem #4 in tutorial sheet #1?

Solution:

Load factor = 80.6% ≈ 0.8

Shrinkage factor = 84.9% ≈ .85

Bank volume $= \dfrac{Compacted\ \ volume}{Shrinkage\ \ factor} = \dfrac{1,000,000\ CCY}{0.85} = 1,176,470.6$ BCY

Loose volume $= \dfrac{Bank\ volume}{Load\ factor} = \dfrac{1,176,470.6\ BCY}{0.8} = 1,470,588.2$ LCY

Number of trucks $= \dfrac{Loose\ \ volume}{Truck\ \ capacity} = \dfrac{1,470,588.2\ LCY}{6\ LCY/truck} = 245,098$ Truck

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2) Calculate the volume of excavation in bank measure required for the basement shown.
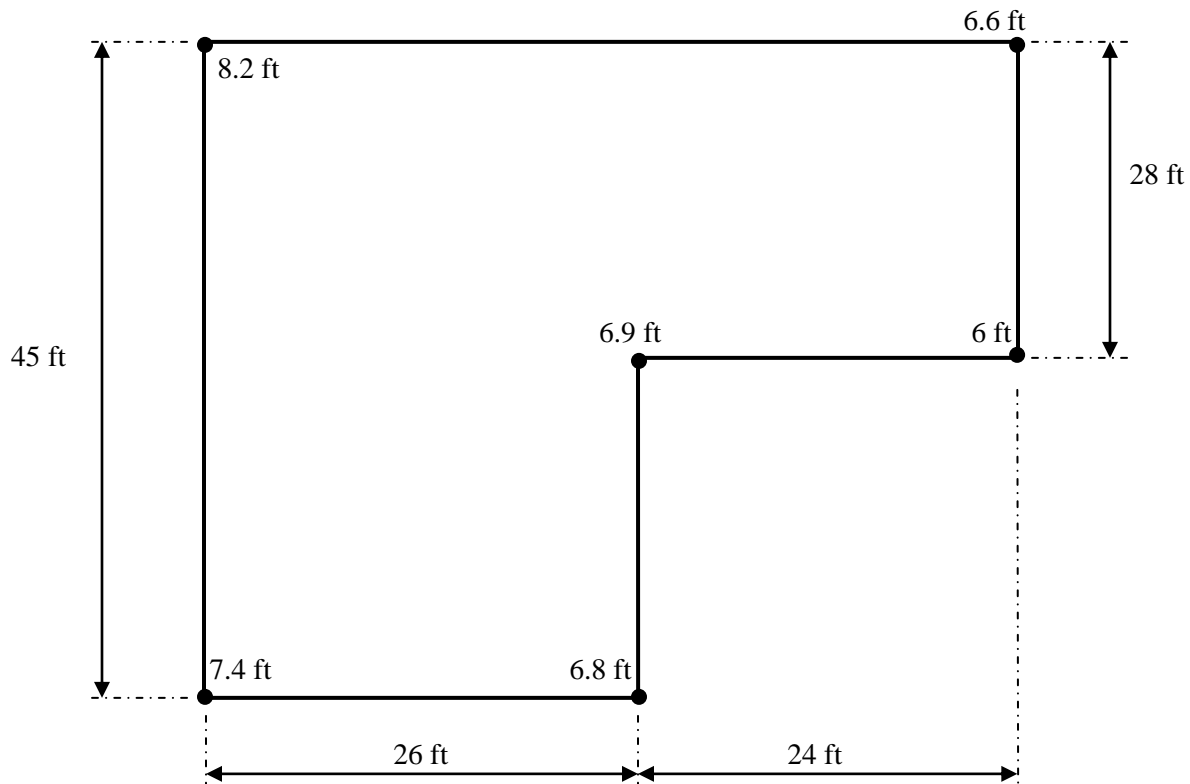
Solution:
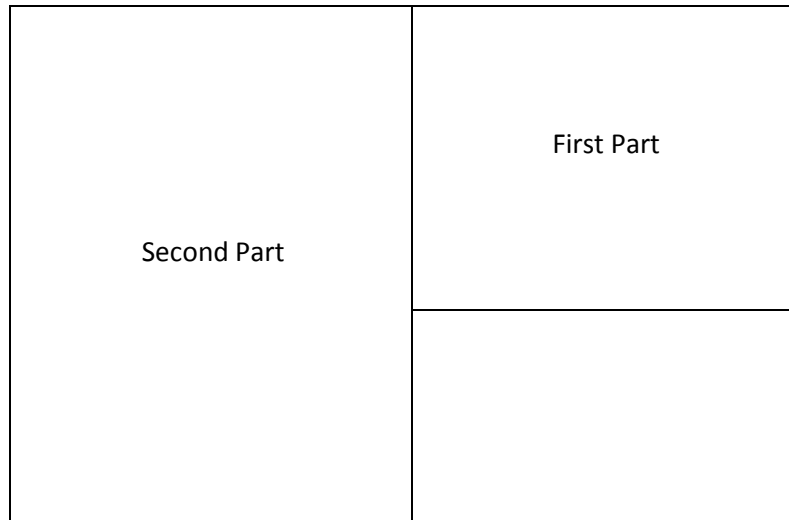


Average depth of first part $= \dfrac{6.6 + 6 + 6.9 + \frac{8.2 + 6.6}{2}}{4} = 6.725$ ft

Area of the first part $= 24 \times 28 = 672$ ft$^2$

Volume of excavation of the first part $=$ area $\times$ depth $= 672 \times 6.725 = 4519.2$ BCf

Average depth of second part $= \dfrac{7.4 + 6.8 + 8.2 + \frac{8.2 + 6.6}{2}}{4} = 7.45$ ft

Area of the second part $= 45 \times 26 = 1170$ ft$^2$

Volume of excavation of the second part $=$ area $\times$ depth $= 1170 \times 7.45 = 8716.5$ BCf

Total volume of excavation $= 4519.2 + 8716.5 = 13235.7$ BCf

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