

Mathematics Problem of the Week 6

This week's winner is: **James Guerry**

Contact Tariq Nuruddin at Surrey MAC or Judy Bicep (Richmond,3335) for your prize or email MathProblem@kpu.ca.

Also submitting correct solutions to problem 265 was: **Suzzane Pierce and Teryn Tsang.**

Problem 265 solution:

Height = 5 ft, 8 in = 68 in.

Initially



Later



Let the depth of the hole during the above conversation be d . Because the worker is 68 inches tall, the worker's head would be $68-d$ inches above ground during the conversation.

Once the hole is dug twice as deep, its depth will be $2d$. Therefore, the worker's head will be $2d-68$ inches below ground once the worker is done digging.

Because the worker's head will be "twice as far below ground" as it was above ground during the conversation, we arrive at the following relation: $2d-68=2(68-d)$ $2d-68=136-2d$ $4d=204$ $d=51$

Therefore, the depth of the hole during the conversation was 51 inches, and so the completed hole will be 102 inches, or 8 feet 6 inches, deep.