1. In 1955, an oil tank 10m high 38m in diameter is built as shown on figure 1.
   a) Calculate the settlement of the center of this tank (point C on figure 1) using the data of figure 2.

In 1975, this tank is removed and a year later, a new thank 15m high 76m in diameter is built. The edge if the new tank goes through the center of the old tank.

b) Calculate the settlement of the edge of the new tank away from the old tank (Point B on figure 1) using the data of figure 2.

c) Calculate the settlement of the edge of the new tank that passes over the center of the old tank (point C on figure 1) using the data of figure 2.
2. An embankment was built as shown in figure 3.
   a) What is the maximum settlement of the embankment?
   b) How much time is required for 90% of that settlement to occur?
   c) How much surcharge is required to get the maximum settlement in 6 months?

   (Hint: Assume that the stress increase in the clay layer is equal to the stress at the bottom of the embankment)

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\[
\frac{C_v}{1 + e_0} = 0.2
\]

\[
g = 20 \text{kN/m}^3
\]

\[
g = 18 \text{kN/m}^3
\]

\[
C_v = 1.8 \times 10^{-3} \text{ cm}^2/\text{sec}
\]

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Figure 2. Consolidation Curve

Figure 3. Embankment