

1. The lateral earth pressure on the wall that is restrained from moving is called at-rest earth pressure. (1 point)

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2. Rankine's active earth pressure coefficient (K_a) is given by the equation: (1 point)

$$K_a = \tan^2 \left(45 - \frac{\phi'}{2} \right)$$

3. Several types of sheet pile are commonly used in construction. Name 3 types of sheet pile wall : (1 point)

Cantilever, Bulkhead, Retaining Wall

4. What is the significance of proper drainage from backfill behind a retaining wall? (1 point)

If the backfill material is not drained properly, then the material may become saturated and exert more force than the wall was designed to handle. This may cause the R.W. to become unstable.

5. Section Modulus of the sheet pile wall per unit length of the structure is given by: (1 point)

$$S = \frac{\text{Maximum moment, } M_{\max}}{D_{\text{wall}}}$$

6. Contraction joints are used during the construction of retaining walls to allow for the expansion of concrete caused by temperature changes (True or False)

they are for shrinkage control.

(1 point)



7. Write the equations for the different pressure distribution components in the following figure. Assume Active Pressure case. (4 point)

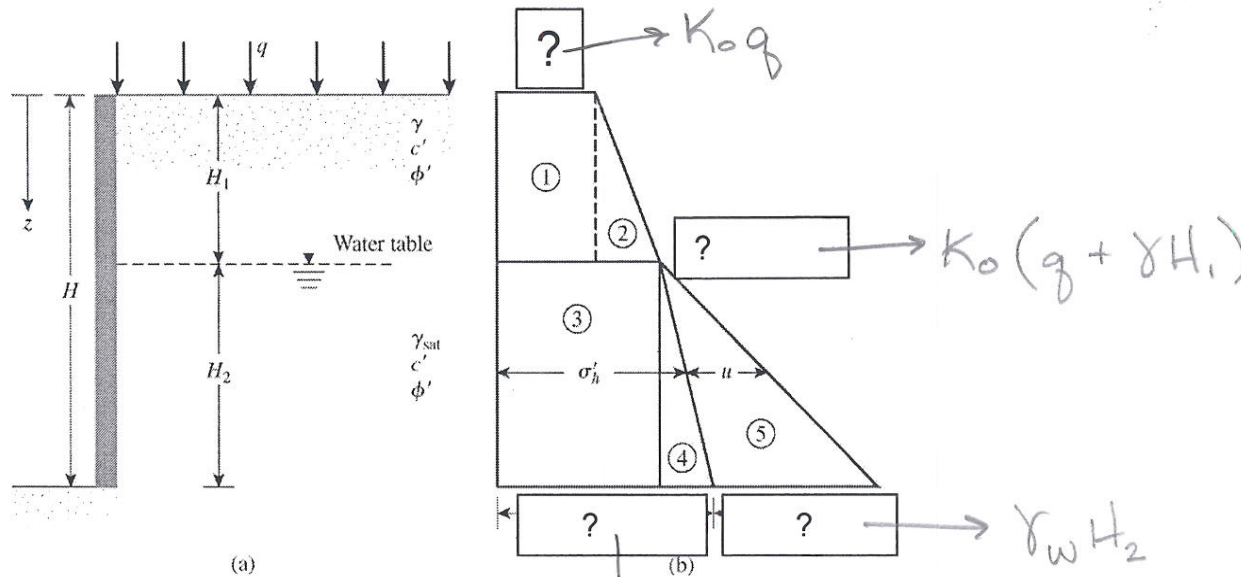


Figure 7.4 At-rest earth pressure with water table located at a depth $z < H$

$K_0 (q + \gamma H_1 + \gamma' H_2)$

