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Universiti Malaysia PAHANG

HYDRAULICS

FLOW IN OPEN CHANNEL
EXERCISE
TOPIC 1.1- 1.3

by

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Exercise 1.1

Compute the hydraulic radius (R) and hydraulic depth (yh) for a trapezoidal channel. The depth of flow is 5m, the bottom width is 15m, and the side slope is 1 (vertical) : 2 (horizontal).

Exercise 1.2

What will be the depth of flow in a trapezoidal channel that has a bottom width of 2.5m and side slope of 1.1? The channel carries a flow rate of $4m^3/s$ with a velocity of 1.44m/s.

Exercise 1.3

A rectangular channel is 4m wide and 2.5m deep. The water in the channel is 1.75m deep and is flowing at a rate of $21m^3/s$. Determine the area of flow, wetted perimeter, and hydraulic radius. Is the flow laminar or turbulent?
(use kinematic viscosity = 1.10×10^{-6} m^2/s)