

1. The diagram below shows a proposal for a wave power generator. Two floating tanks are joined together with a pipe that contains a turbine which is connected to a generator. The tanks are positioned so that when one is on the crest of a wave the other is in a trough. Estimate the power generated given the following data.

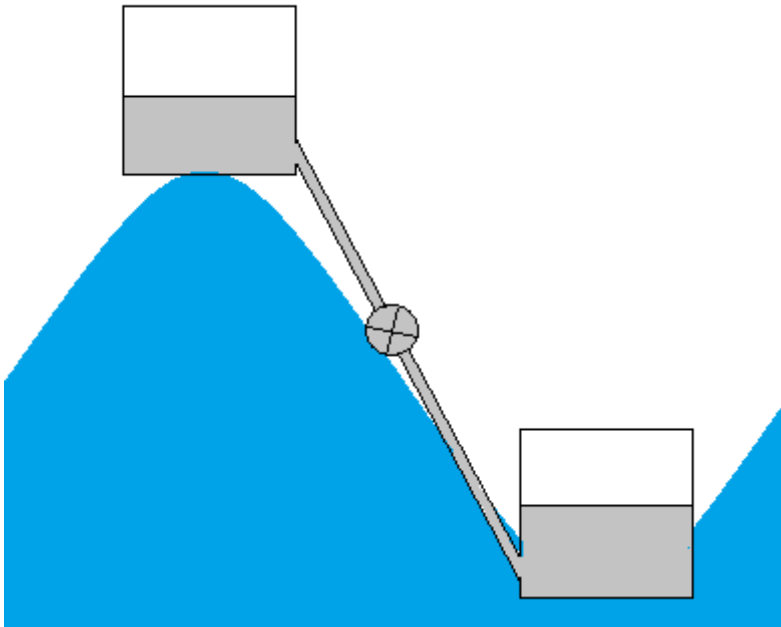
Tank volume = 10m^3

Wave amplitude = 4m

Wavelength = 20m

Wave velocity = 5ms^{-1}

Efficiency = 20%



2. The average wind speed at a height of 80m over the North sea is estimated to be about 9ms^{-1} . Norway plans to build a 10MW wind turbine in the North sea which will have blades of diameter 145m producing 10MW of power.

Calculate the efficiency of the turbine.

Norways biggest wind turbine

Wind speed at 80m

