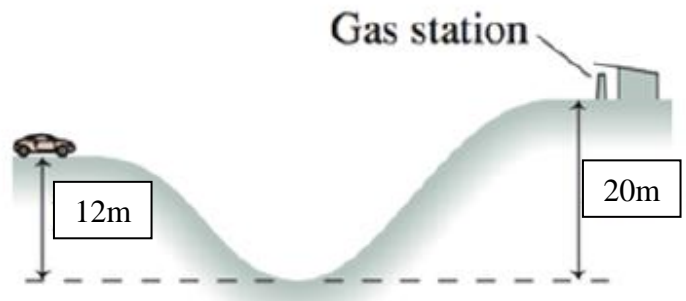




3. A girl pushes a merry-go-round with a force of 120 N for a distance of 6.0 m. If she does this in 2.0 s, how much power does she have? (2 marks)

4. A 2000kg car runs out of gas on its way down a hill, and the driver decides to let it coast down the hill and as far as he can to shorten the distance to the gas station that is on top of the next hill.

The car was travelling at 50km/hr when it ran out of gas, the first hill has a height of 12m, the second hill has a height of 20m.



(8 marks) Watch your units of measure. This is a THINKING problem, not just calculating.

- How much energy does the car have at the start of the problem?
- Does the car make it up the second hill to the gas station (assume ideal conditions, no losses)?
- If there was a 20% loss due to friction from the starting energy, would the car make it to the gas station on the top of the hill? Justify your answer with numerical proof.