A 50 kg student climbs 3 m to the top of a set of stairs.

a. Calculate the change in the student's gravitational potential energy from the bottom to the top of the stairs. Show your calculations and include units in your answer.
b. How much total work does the student do while climbing the stairs? Show your calculations or explain your reasoning. Include units in your answer.

It takes the student 30 s to climb to the top of the stairs.

c. What is the average power generated by the student climbing the stairs? Show your calculations and include units in your answer.

The next day the student carries a 10 kg backpack up the same stairs and again takes 30 s to reach the top of the stairs.

d. Is the average power you calculated in part (c) greater than, less than, or equal to the average power the student generated the next day? Explain your answer.