

Homework 2 question 4 example

4a) One of my regular activities is washing dishes. I do this in a sink filled with hot soapy water using either a scrub brush (with a long handle), a sponge or a dish cloth.

4b) I will measure the maximum forward lean of my back (the angle between my back and pelvis) as well as how far away from my body I hold the dish I am cleaning.

4c) To measure the angle of my back, I will be using a goniometer with one arm attached to my back and the other attached to my pelvis. To measure how far away I am holding the dish, I will use motion capture. I will place a video camera straight above my head (and the sink) and record my movements in a 2D plane. I will then watch the video and measure the distance using the captured image.

4d) Two of my common complaints while washing dishes is that my lower back and my shoulders hurt. I will take these measurements using the three different washing tools (scrub brush, sponge and dish cloth) and then compare the angles and distances using these tools. The larger the maximum forward lean of my back, the more likely my lower back will hurt while doing dishes. The further away the dish is from my body, the more likely my shoulders will hurt while doing dishes. I will compare these two measurements using all three tools and find the tool which minimizes both of these. This will reduce the risk of a serious dish washing injury.

- [MVS110](#)

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