Show all work and don’t forget to check your answers.

1. (3 points) Suppose Mark the Minimalist owns 3 pairs of pants, 5 shirts, 2 pairs of shoes, and 2 pairs of socks. How many different outfits can Mark wear (assuming he wears matching socks of course).

2. (3 points) There are 12 actors who have portrayed “The Doctor” (aka “Doctor Who”). How many ways are there to choose a first, second, and third favorite actor from these twelve. (you do not need to carry out a calculation, as long as it is clear what to punch into a calculator)
3. (4 points) I have a bag of 62 unique dice. If I pull out 7 at random, how many different sets of dice could I pull out? (Please don’t try to carry out this calculation by hand, as long as it is clear what to punch into a calculator)

4. (3 points) Suppose there are six people who want to sit on a bench. How many ways can they arrange themselves if two of them refuse to sit next to each other? (you do not need to carry out a calculation, as long as it is clear what to punch into a calculator)