

**Assignment 3** - Due Thursday 10/1/2020

**Exercises from Colley:**

1.7: 2, 4, 9, 12, 18, 26, 27, 32, 42

2.1: 4, 10, 13, 29

2.2: 7, 8, 10, 18, 28, 30, 34, 35, 41, 43, 49, 50

**Upload to Gradescope only solutions to the following 10 questions:**

1.7: 12, 18, 27, 42

2.1: 13

2.2: 10, 18, 28, 35, 43

**Notes:**

Throughout the book there are extra things that we do not need to do, and which may even be counterproductive. There are also things that are given as explanation, or as formulas, that we do not need to commit to memory. In section 1.7 the formulas in blue boxes for conversion between different coordinate systems are not necessarily something you should memorize. I don't remember those formulas reliably myself: I work them out when I need them, from an understanding of the geometry, and I think this is a better way to approach them. If I try to remember a formula, I will probably get it wrong.

Do not bother with pages 71 - 73 (before the exercises) which are about 'standard bases' and hyperspherical coordinates. You will not be tested explicitly on these things, although the standard basis material does relate to other things we will do.

In section 2.1 you should know something about sketching surfaces, including the information given by considering level curves and contours, but I am not going to test you on the specific meanings of level curve or contour, or on the names or form of the quadric surfaces on pages 94 and 95, beyond what you can figure out about them for yourself. Don't memorize those quadric surfaces!

Be guided in all this by what is asked in the questions at the ends of sections. They will give you an idea of what you need to know. There are many things we do that are foundational theory but about which no question are asked, and if you can do questions on a topic without reading a lengthy explanation, then I suggest you move on.