In Section 6.1, please do the following ten problems.

Exercises 2, 6, and 8. (Exercises 1, 3, 4, 5, 7 are similarly good practice, but I'm not asking you to turn them in.)

Exercises 10, 12. (Exercises 9, 11 are similar, but I'm not asking you to turn them in.)

Exercise 13. You might want to read the definition of distance on page 353 first.

Exercises 15, 16. (Exercises 17, 18 are similar, but I'm not asking you to turn them in.)

Exercise 32. This one is a bit more involved. If you're bewildered about how to start, then here's a hint: The key facts are the definition on page 351 and then the theorem on page 351.

Exercises 40bc. By "random vectors" it means "vectors of your choice, but don't make them too simple; for example, don't pick vectors that are scalar multiples of each other". Based on this calculation, make the conjecture requested in part d.

(This exercise is ripe with hidden meaning, because this particular matrix A is the two-qbit Hadamard gate $H \otimes H$ used in quantum computers. Programming quantum computers is almost entirely linear algebra.)