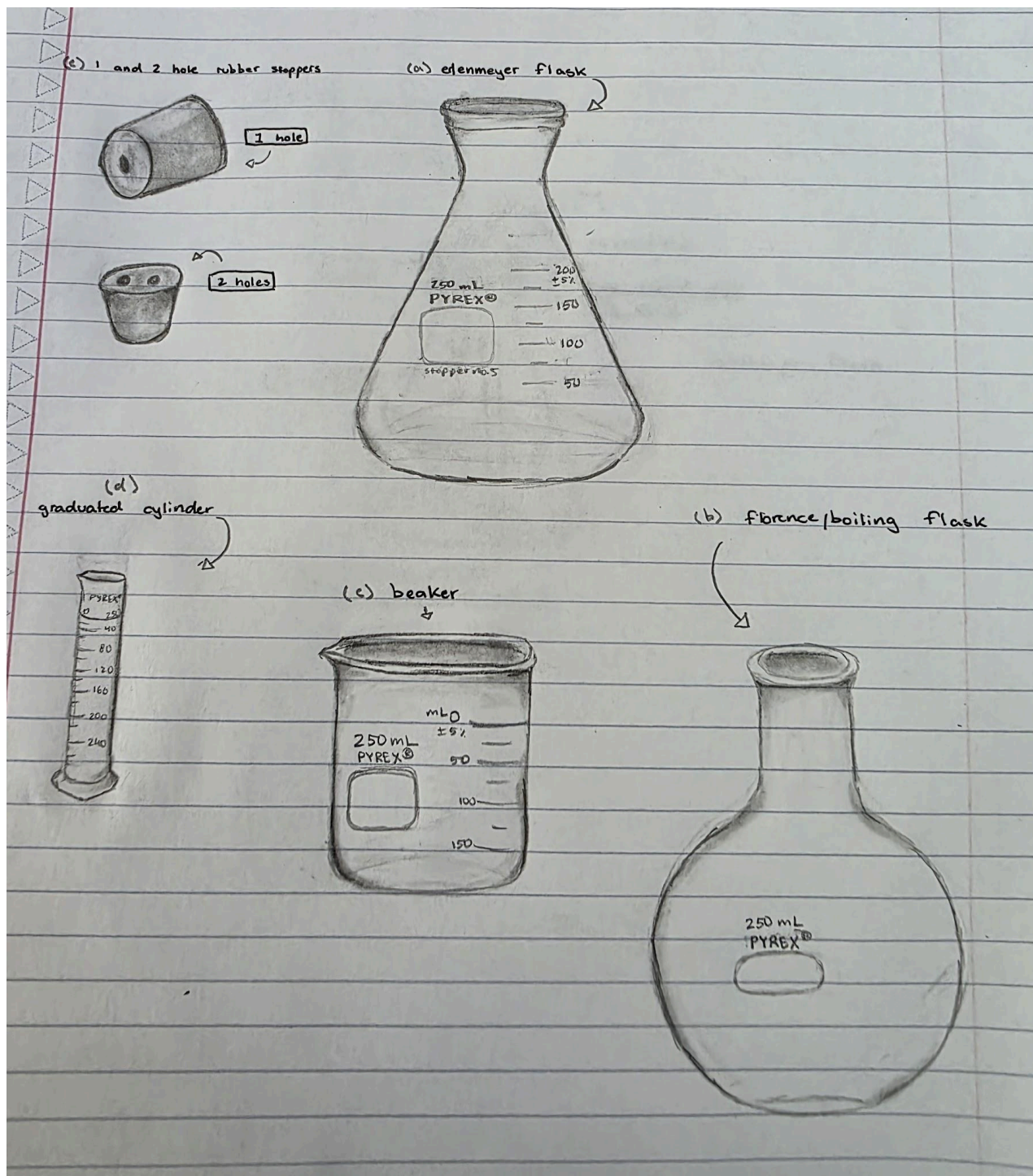


Glassware Fabrication lab

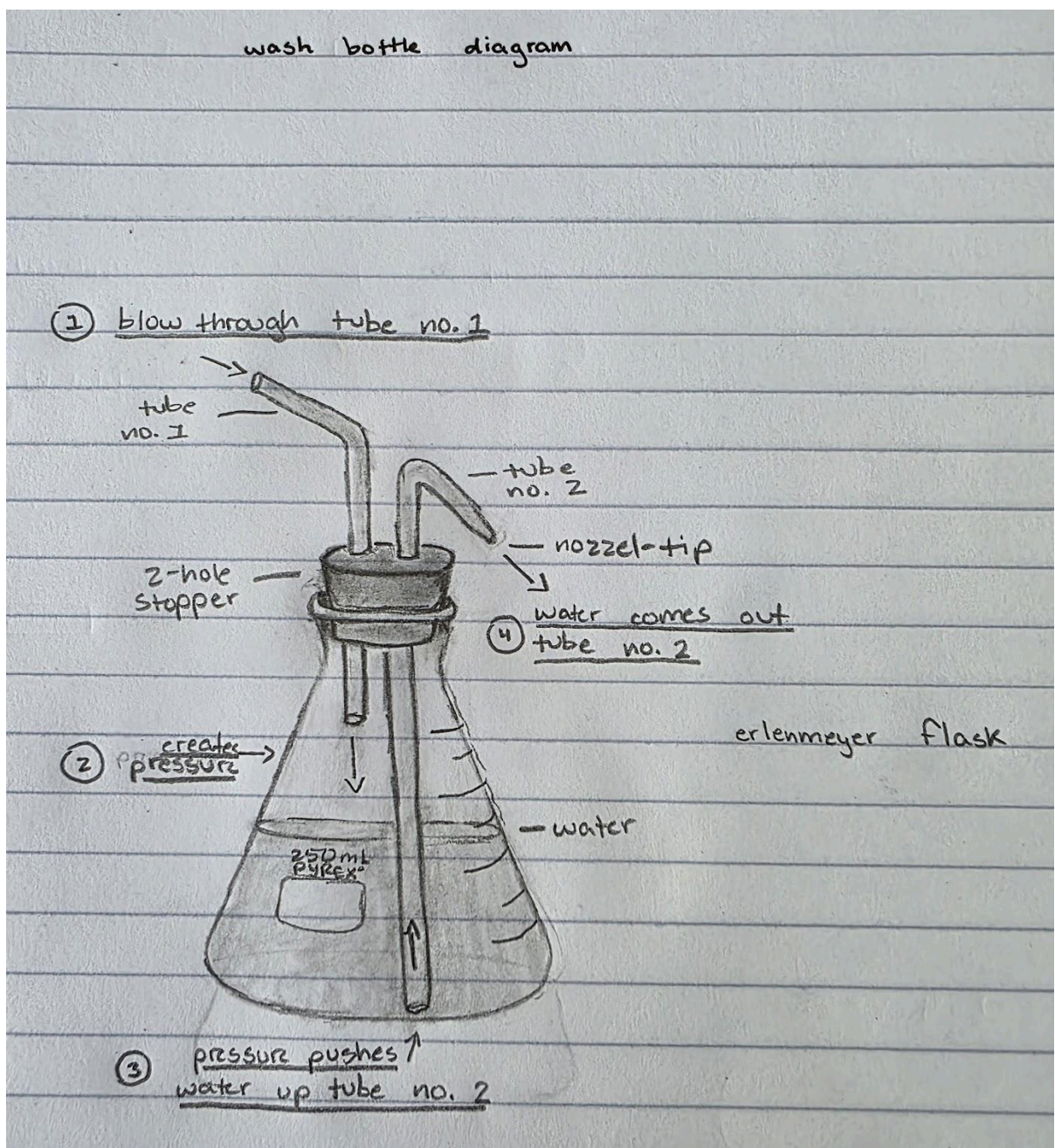
Iona Thomas, September 8, 2025

(10 questions, 100 points)

1. Carefully draw diagrams and label the following
 - a. Erlenmeyer flask
 - b. Boiling flask (Florence flask). Look it up on the Internet.
 - c. Beaker
 - d. Graduated cylinder
 - e. 1-and-2 hole rubber stoppers



2. Explain how to safely cut glass tubing, how to bend it using a flame, and how to draw it out to a nozzle-tip.
- To safely cut glass tubing, you file a straight line on top of the glass, using a triangle file (While wearing safety glasses). When the line is distinct, you hold the tubing and break it away from you on the line. That means that the glass cut will be facing away from you when you apply pressure to snap the glass. It should come away pretty clean, but you have to file the end edges, as they can be sharp and sometimes jagged.
- To bend the glass, you set the butane burner to a low setting, and hold the glass tubing up to the tip of the blue flame. At first, you rotate the tubing to get an even heat on it, and once the glass in the middle starts to get soft, you slowly start to bend it. You have to make sure to bend it slowly, otherwise the glass will kink and it won't be a straight bend.
- To draw out the nozzle-tip on the tubing, you follow the same steps as when you are bending the glass, but the glass starts to get soft, you slowly pull the tubing apart instead of bending it. You do all three of these while wearing safety glasses.
3. Carefully draw and label a diagram of the glass laboratory wash-bottle we fabricated in class. Label all the parts and explain how it works.



Refer to your Lab Safety Rules Agreement:

4. Explain what is meant by the "waft" principle when smelling substances in the lab. Why is this important?
To "waft" a smell towards you from a test tube means you only get a whiff of the substance inside the test tube. Some chemicals have strong scents and can be damaging to directly inhale, so you always have to err on the side of caution while smelling chemicals.
5. Explain what steps you should immediately take if you get a small amount of acid or base on your hands
You should immediately wash your hands, and then tell the teacher if you are injured, or need help.
6. T/F: If there's broken glass on the floor, you should carefully pick it up with your hands so people don't get cut. Explain why/why not?
False, you should NOT pick up broken glass on the floor (or broken glass anywhere). You could cut yourself and little microscopic pieces of glass could get stuck in your hand.
7. Why shouldn't you use 'cracked' beakers, test tubes, and other glassware in the lab?
A cracked beaker, test tube or other glassware can be dangerous to use, as chemicals that you may try to use in them can leak out. Additionally, cracked glass isn't stable and is way more likely to fully shatter when you are using it.
8. Why shouldn't you look down the end of a test tube at the contents which have just been heated? Explain.
If you look down a test tube that has just been heated, the chemicals inside can 'erupt' and come up the test tube, in which the chemicals would burn your eyes and your face.
9. Why should you always wear eye protection in the lab? Give an example of what could happen otherwise.
Wearing eye protection in the lab is important because chemicals can get into your eyes, causing permanent damage in most cases (and your eyes are non-replacable). Additionally, glassware used in labs can explode and/or crack if not handled correctly, and if you do not have eye protection on, you could get glass in your eyes which would be very painful and hazardous.
10. How should you test if something is 'hot' before handling it? Explain.
Before handling anything that is potentially hot, you can hover your hand over it to test the heat. If you feel heat without actually touching the object, wait a little longer for it to cool, so you don't burn yourself. This way you don't have to risk burning yourself by testing whether the glass is cool enough, because you don't have to touch the glass.