

## Unit One Test Review

1. Determine the number of significant figures in the following:

- a. 2.035
- b. 0.00002
- c. 2300
- d. 100.0

2. Convert the following to scientific notation:

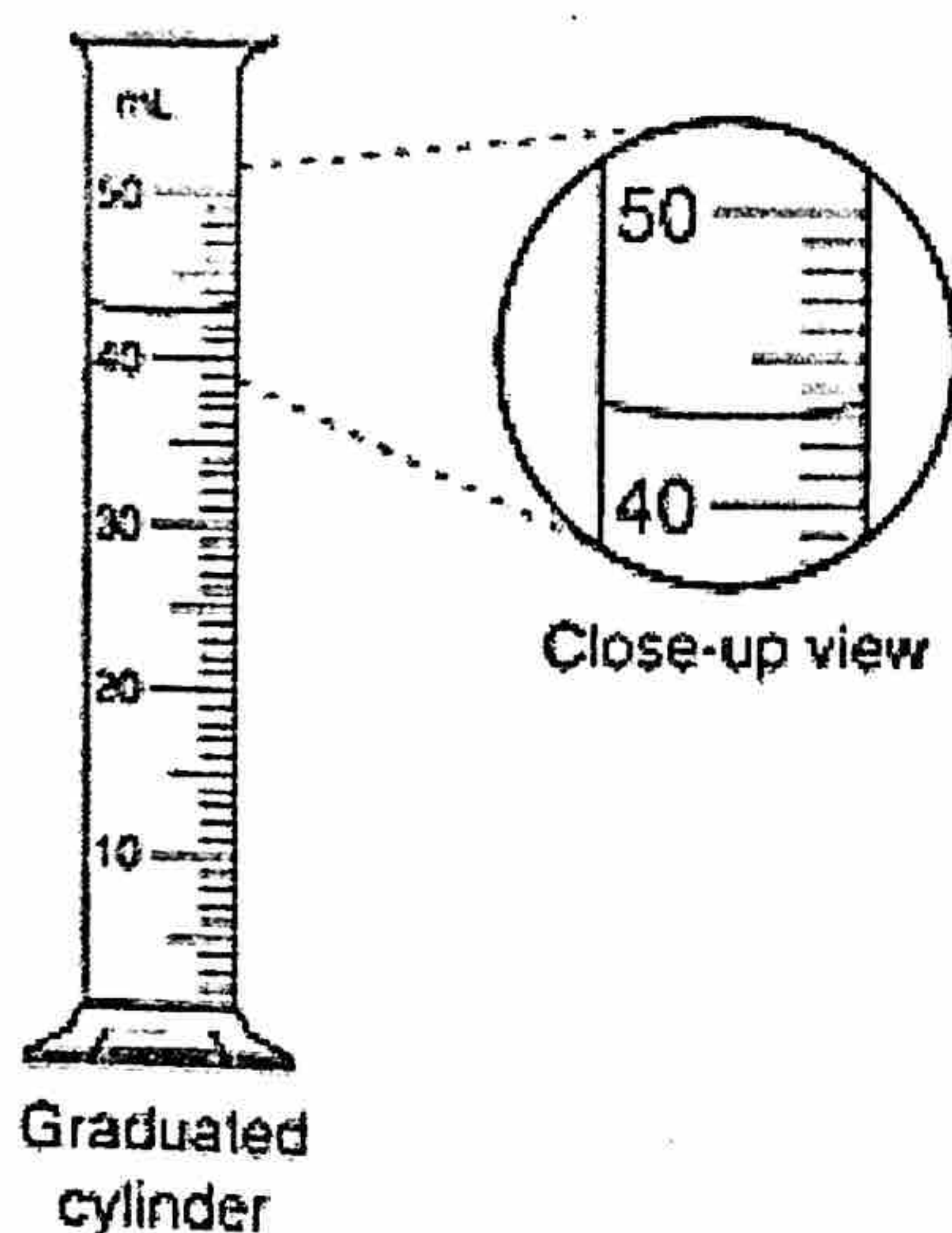
- a. 2300000000000000
- b. 0.000000005398

3. Convert the following (include the correct number of significant figures, units, and show work):

- a. 52 ng = \_\_\_\_\_ cg
- b. 0.05 kL = \_\_\_\_\_ mL

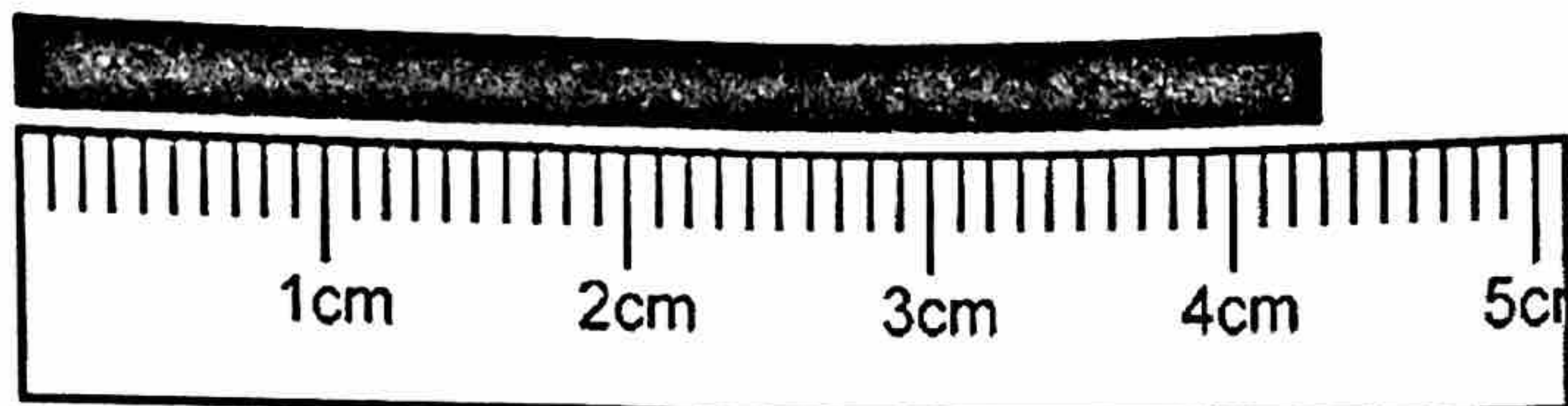
4. What is the density of a piece of metal that has a mass of 23.58 g and a volume of 3.00 mL? What metal is this?

Use the measuring tools/graphics on the left hand side to answer the questions on the right.

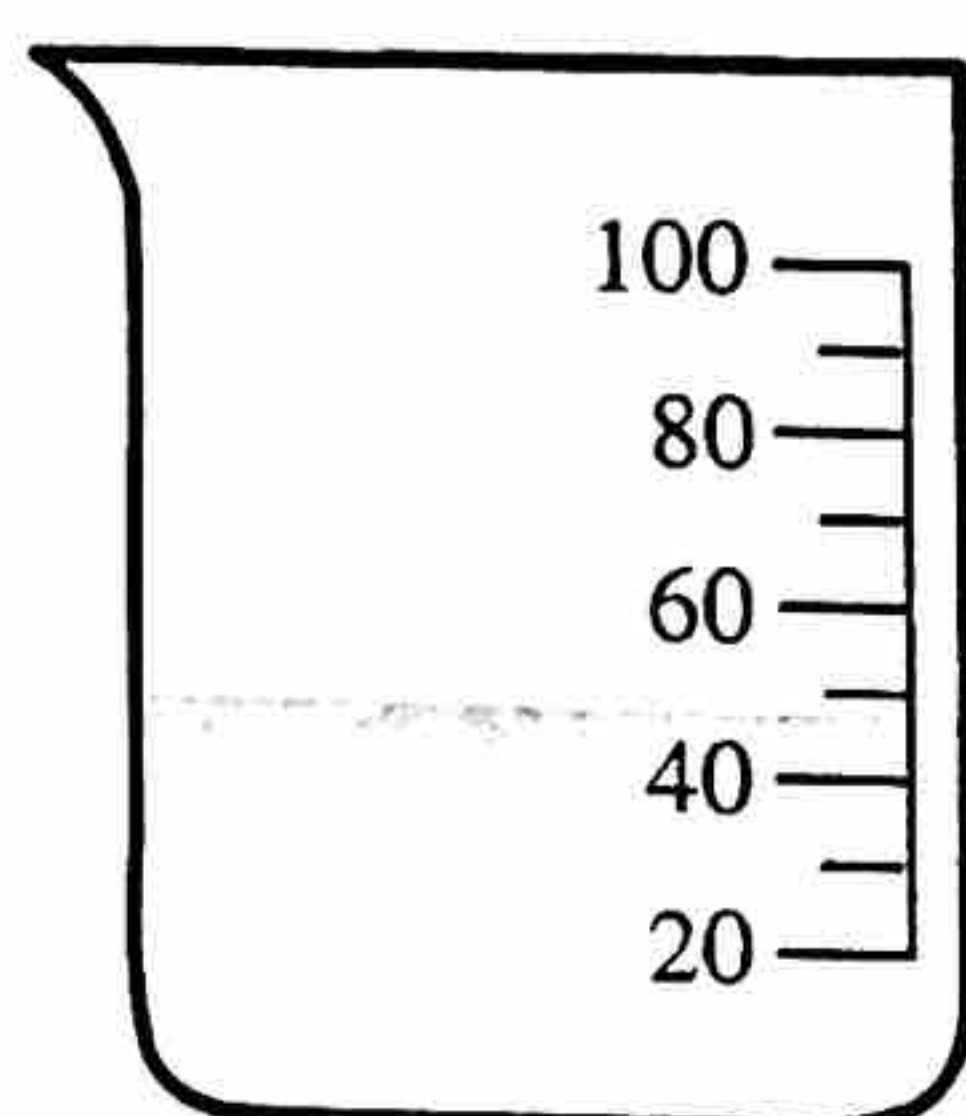


5. Measure the amount of liquid in the graduated cylinder and provide the uncertainty in the measurement.

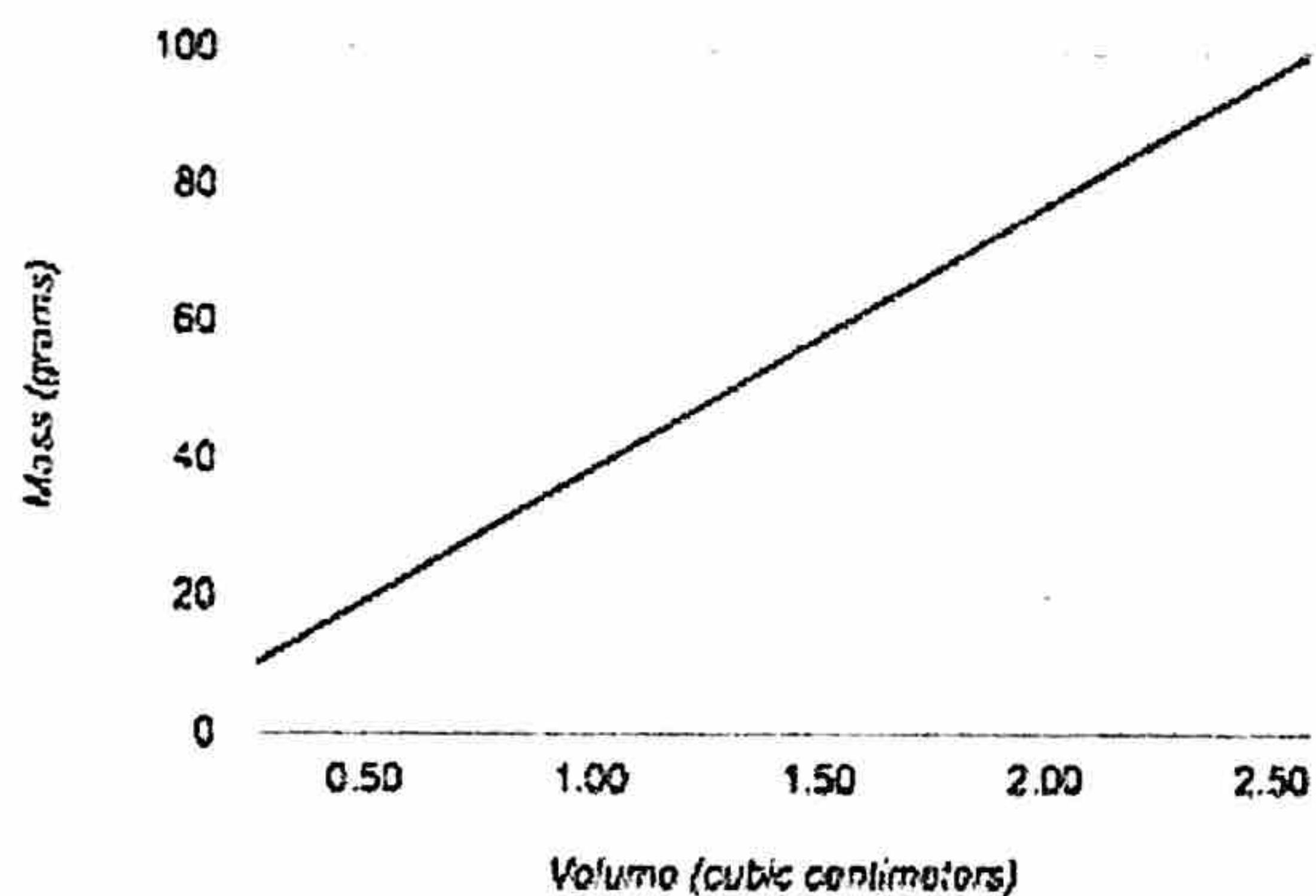
6. A graduated cylinder has 1.53 mL of water, what is the uncertainty of the cylinder?



7. How long is the line above the ruler? what is the uncertainty?

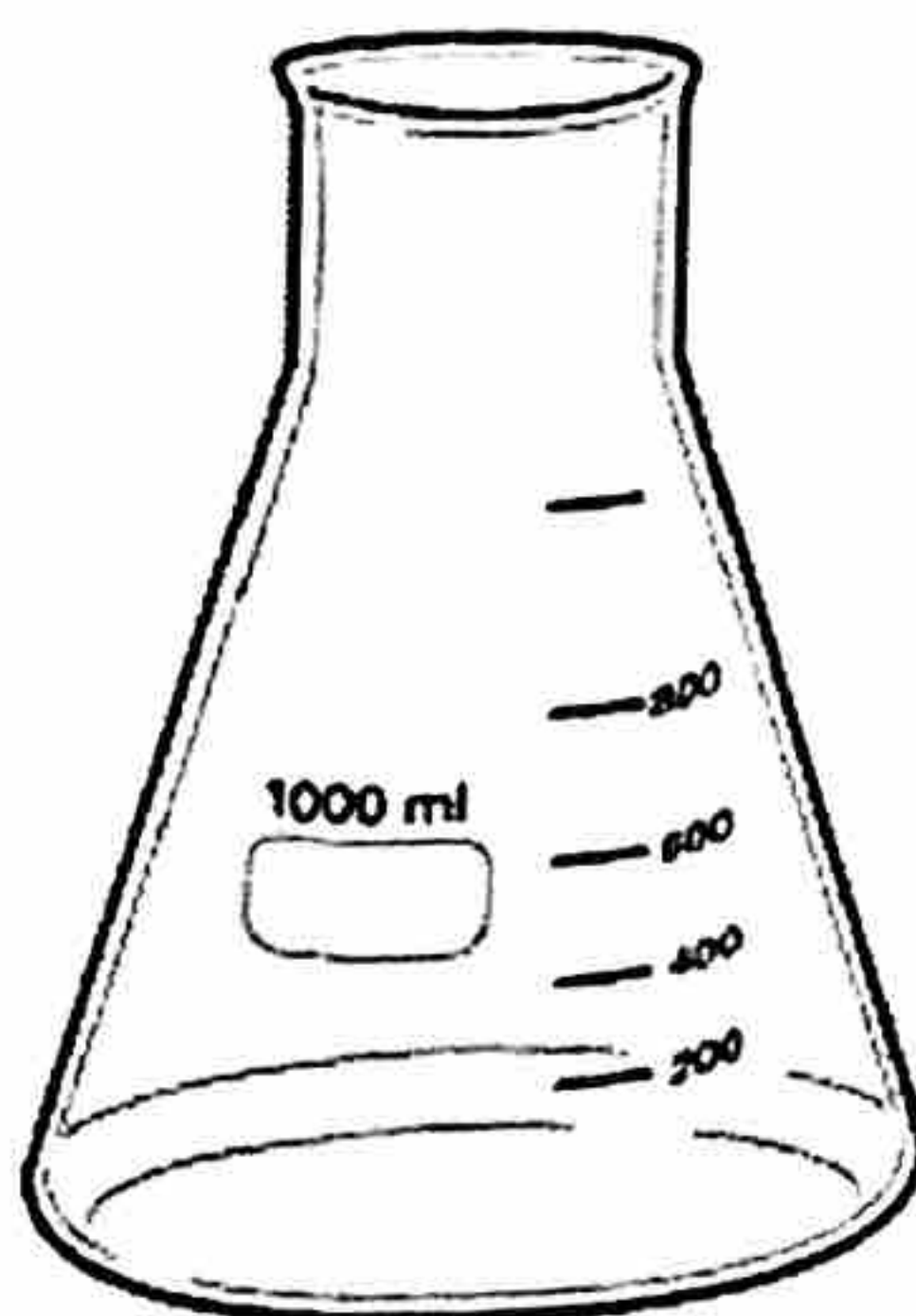
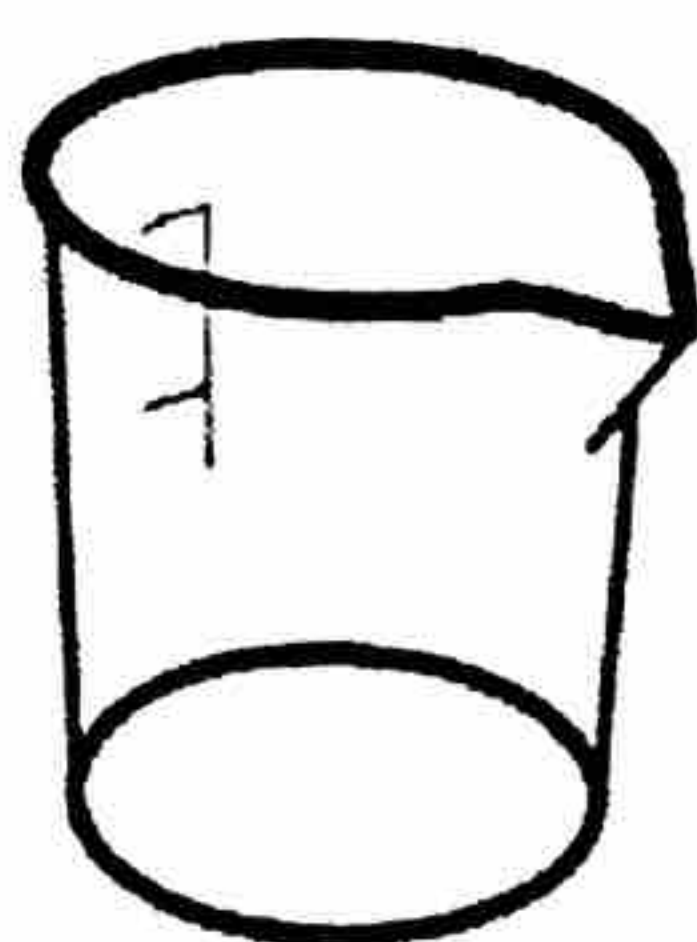
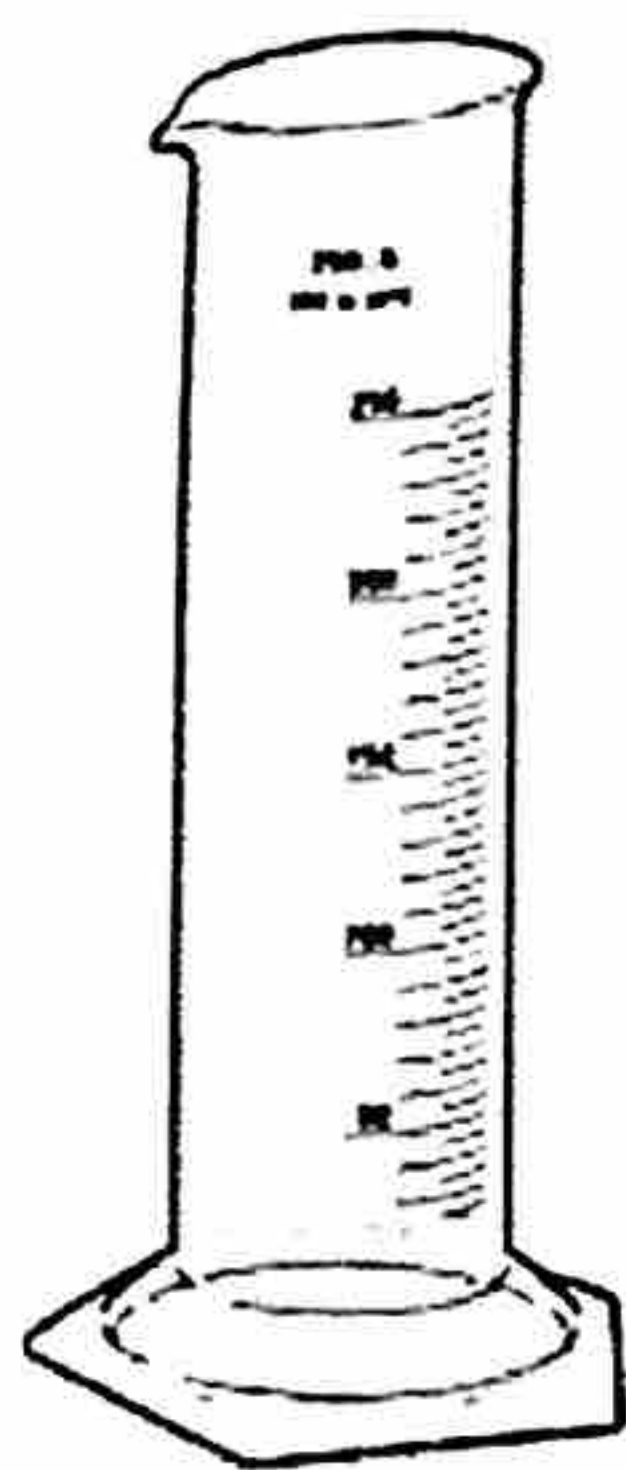


8. How much liquid is in the beaker? What is the uncertainty?



9. Determine the density from graph provided.





10. What lab equipment is shown in the picture to the left?

### Answers

1. Significant figures:

- a. 4
- b. 1
- c. 2
- d. 4

2. Scientific notation

- a.  $2.3 \times 10^{13}$
- b.  $5.398 \times 10^{-9}$

3. Conversions

- a.  $5.2 \times 10^{-6}$  cg
- b.  $5 \times 10^4$  mL

4.  $7.86 \frac{g}{mL}$ , Iron

5. 43.1 mL,  $\pm 1$

6.  $\pm 0.01$  mL

7. 4.31 cm,  $\pm 0.01$

8. 48 mL,  $\pm 1$

9. 40 g/cm<sup>3</sup>

10. graduated cylinder, beaker, erlenmeyer flask