

Lab 1: Basic Telescope Exploration

Name _____

date / time: _____

weather: _____

Circle = Field of view

Sketch the view through the finder.

How is what you see oriented with respect to what you see naked-eye?

How big do you estimate the diameter of the field of view is in degrees?

Sketch the view through the telescope.

telescope name:

eyepiece focal length:

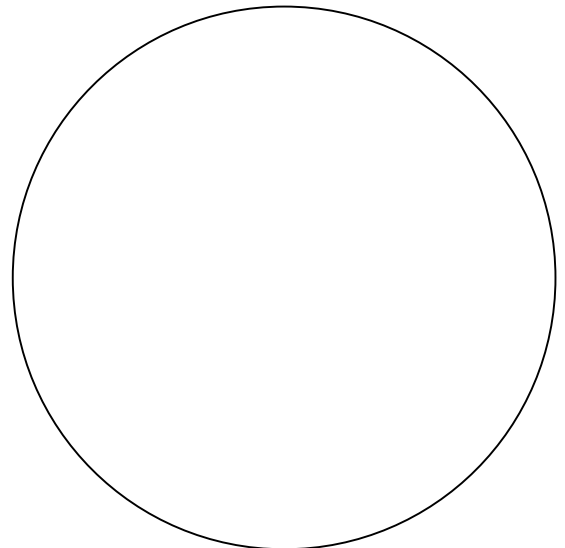
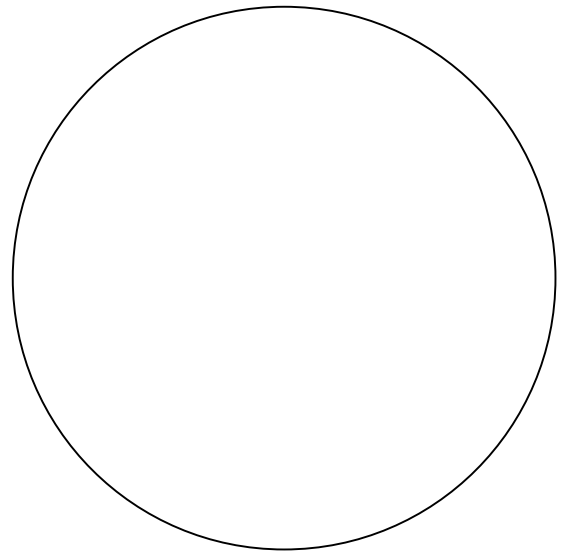
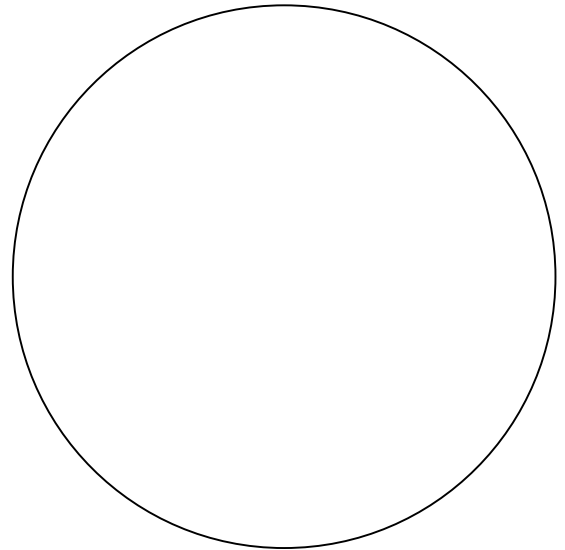
Check here that you have checked the image focus: ☐

How big do you estimate the diameter of the field of view is in degrees?

Sketch the view through the same telescope, with a different focal length eyepiece.

new eyepiece focal length:

Which eyepieces give greater magnification, longer ones or shorter ones?



Instructions

This lab is due Feb 02

- **Use** one of our 8-inch telescopes; record telescope, time, etc., info on your observing sheet (ask how to tell which telescope and eyepiece you are using).
- **Find** a distant object with the telescope.
 - Looking through the *finder*, **sketch** the view that you see using the circle on the observing sheet to represent the field of view (i.e., the whole area that you can see through the finder).
 - ➔ How is the object oriented with respect to what you see naked-eye?
 - ➔ How large is the field of view? (see below)
 - Look at the same object through the main telescope. Use the focus knob to bring the image in and out of focus.
 - ➔ Record that you have checked the focus.
- **Sketch** carefully what you see through the main telescope.
 - ➔ How large is the field of view?
- **Ask** for an eyepiece with a different focal length and repeat your drawing.
 - ➔ Note which eyepiece gave you a more magnified view of the clock, the longer or shorter.
- **Have** your sketches initialed by the TA before you leave the roof.
- **Turn** in your lab to the TA

You are welcome to work together on this lab *BUT* be sure that each of you actually physically moves the telescope, finds something, changes the focus, etc. Please ask for help or advice if you are unsure how to go about doing this lab; don't think "I must be the only one who doesn't know how to use a telescope"!

Angles: There are 360° in a circle; each degree is divided into 60 arcminutes; each min. is divided into 60 arcseconds. The full Moon is about $\frac{1}{2}^\circ$ (or 30 arcmin. or 1800 arcsec.) across; the pointer stars in the Big Dipper are about 5° apart. Using your hand: from thumb to little finger your outstretched hand at arm's length is about 18° and your fist about 10° across; the segments of your index finger, from tip to hand, are about 3, 4 and 6 degrees long and the width of your ring finger is about 1° .