INSTRUCTIONS:

While you wait your turn to enter the planetarium, you can open your envelope and read the test. Before entering the planetarium, each competitor will receive a red flashlight, a clipboard, a (non-red) pen, and the question sheet;

Upon entering the planetarium, there will be a 5-minute period for eye adaptation and celestial object observation;

Writing anything on the answer sheet before Problem 1 begins is strictly prohibited;

After the adaptation, you will see a notice that Problem 1 has started.

At the end of the 10 minutes, you will see a notice that Problem 1 has ended.

After Problem 1 has ended, you will see a notice that Problem 2 has started.

At the end of the 10 minutes, you will see a notice that Problem 2 has ended.

After that, the planetarium must be evacuated quickly and in an orderly manner.

Please leave all materials received before entering the planetarium in the designated area and proceed to the indicated location.

In the planetarium's projection, azimuth starts at the North Cardinal Point, which is assigned 0 degrees. The East Cardinal Point has an azimuth of 90 degrees, and so on;

The projected sky simulates a Bortle 1 location and features stars and deep sky objects with magnitudes of 6.0 or less.

PROBLEM 1

1.(Maximum value 4.0 points)

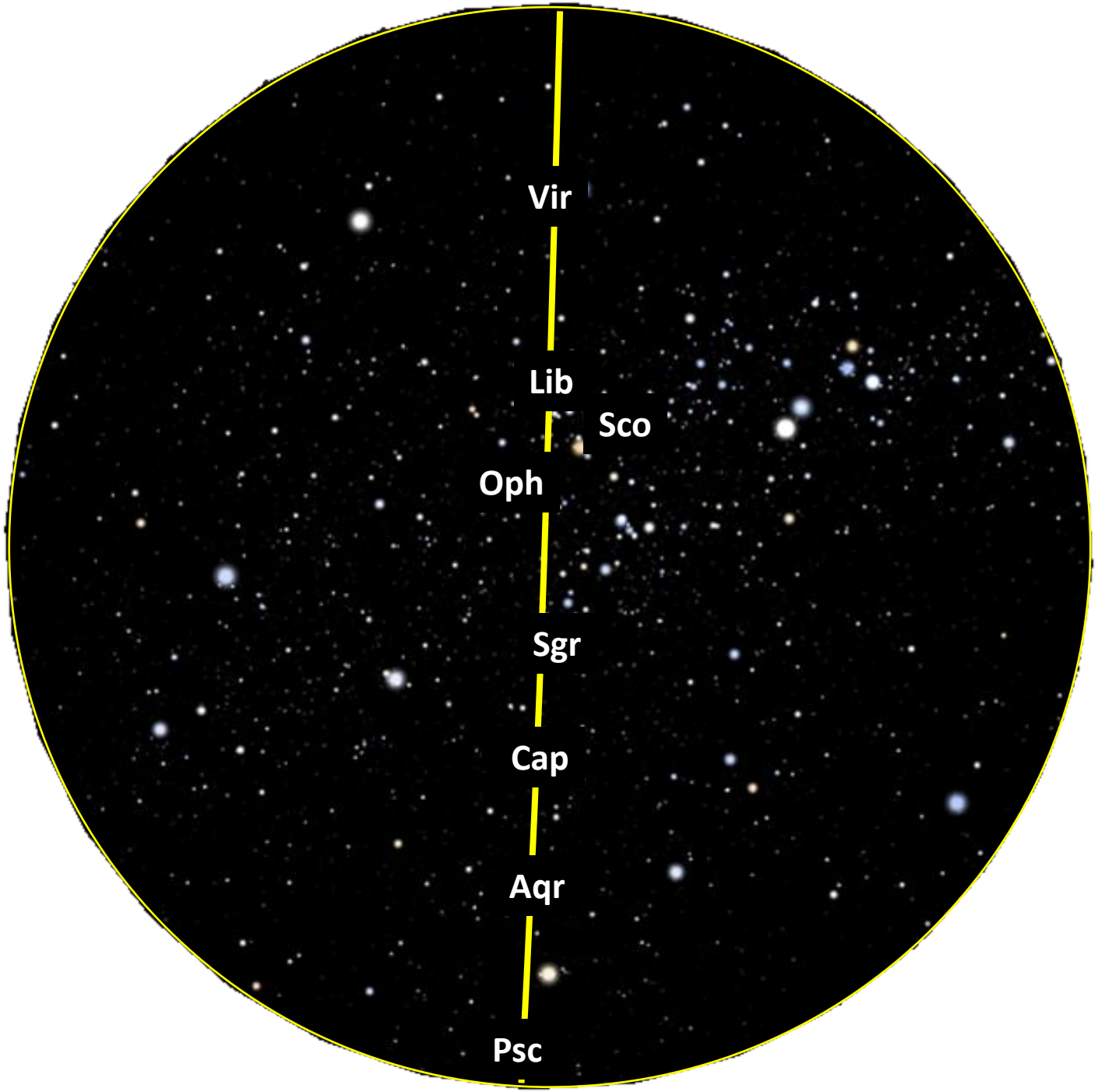
According to the nomenclature of the International Astronomical Union, write in full or abbreviated form the zodiacal constellations that are partially and completely above the horizon line.

Correct answer value = add 0.5 point each
Error value = remove 0.8 point for each constellation that is mentioned wrongly.

WRITTEN ANSWER IN FULL:	ABREVIATED WRITTEN ANSWER:
Pisces	Psc
Aquarius	Aqr
Capricornus	Cap
Sagittarius	Sgr
Ophiuchus	Oph
Scorpius	Sco
Libra	Lib
Virgo	Vir

Correct answer value = add 0.5 point each

Error value = remove 0.8 point for each constellation that is mentioned wrongly.


Vir
Lib
Sco
Oph
Sgr
Cap
Aqr
Psc

2. (Maximum value 4.0 points)

Employing the Bayer designation, based on the provided coordinates, identify and name the requested stars with magnitudes less than 1.3.

a) Azimuth: 254º23'; Altitude: 68º22’

Answer: _____

b) Azimuth: 113º24’; Altitude: 24º30’

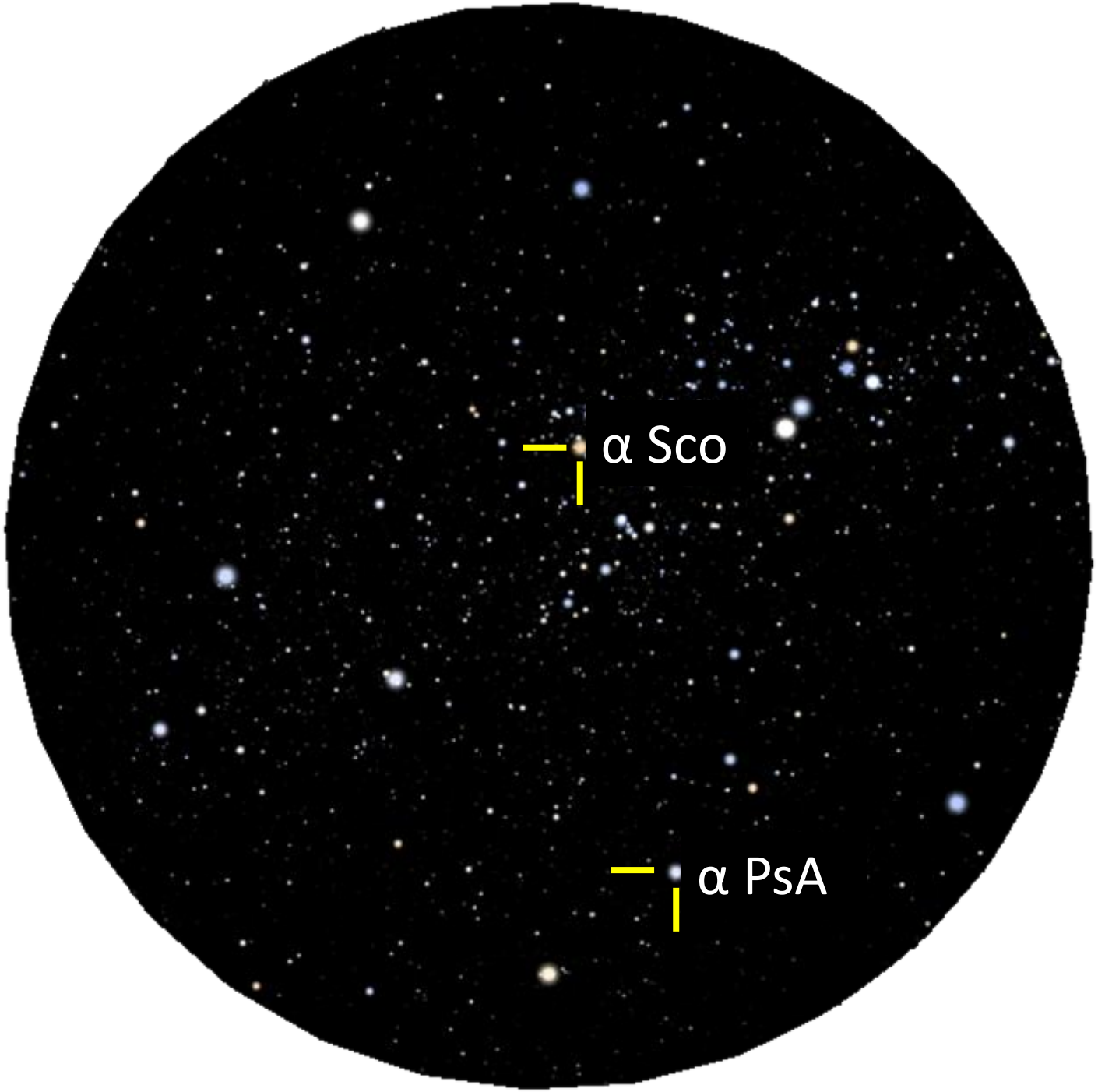
Answer: _____

2. (Maximum value 4.0 points)

Employing the Bayer designation, based on the provided coordinates, identify and name the requested stars with magnitudes less than 1.3.

a) Azimuth: 254º23'; Altitude: 68º 22’
Answer: α Sco
Correct value = 2.0 points

b) Azimuth: 113º24’; Altitude: 24º30’
Answer: α Psa
correct value = 2.0 points


α Sco
α PsA

3. (Maximum value 2.0 points)
Observing the projected sky, answer:

a) There is an alpha star, close to the celestial meridian line and which belongs to the boreal constellation. Using Bayer's designation, what is the name of this star?

Answer: _____

b) Using one of the nomenclatures from Messier's Catalog, or New General Catalogue, which nebula is located at the intersection between the Celestial Meridian Line and the Ecliptic?

Answer: _____

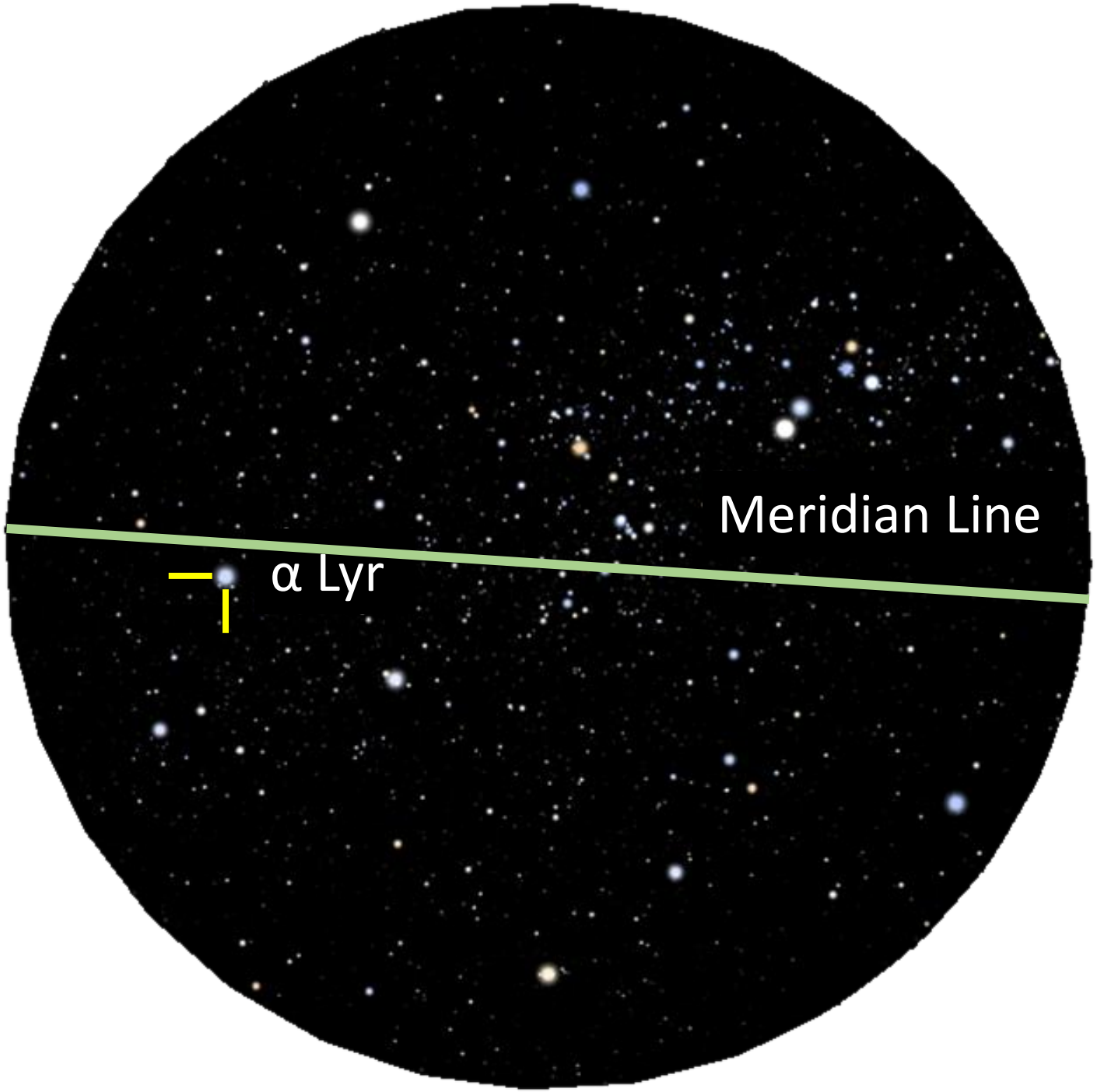
3. (Maximum value 2.0 points)
Observing the projected sky, answer:

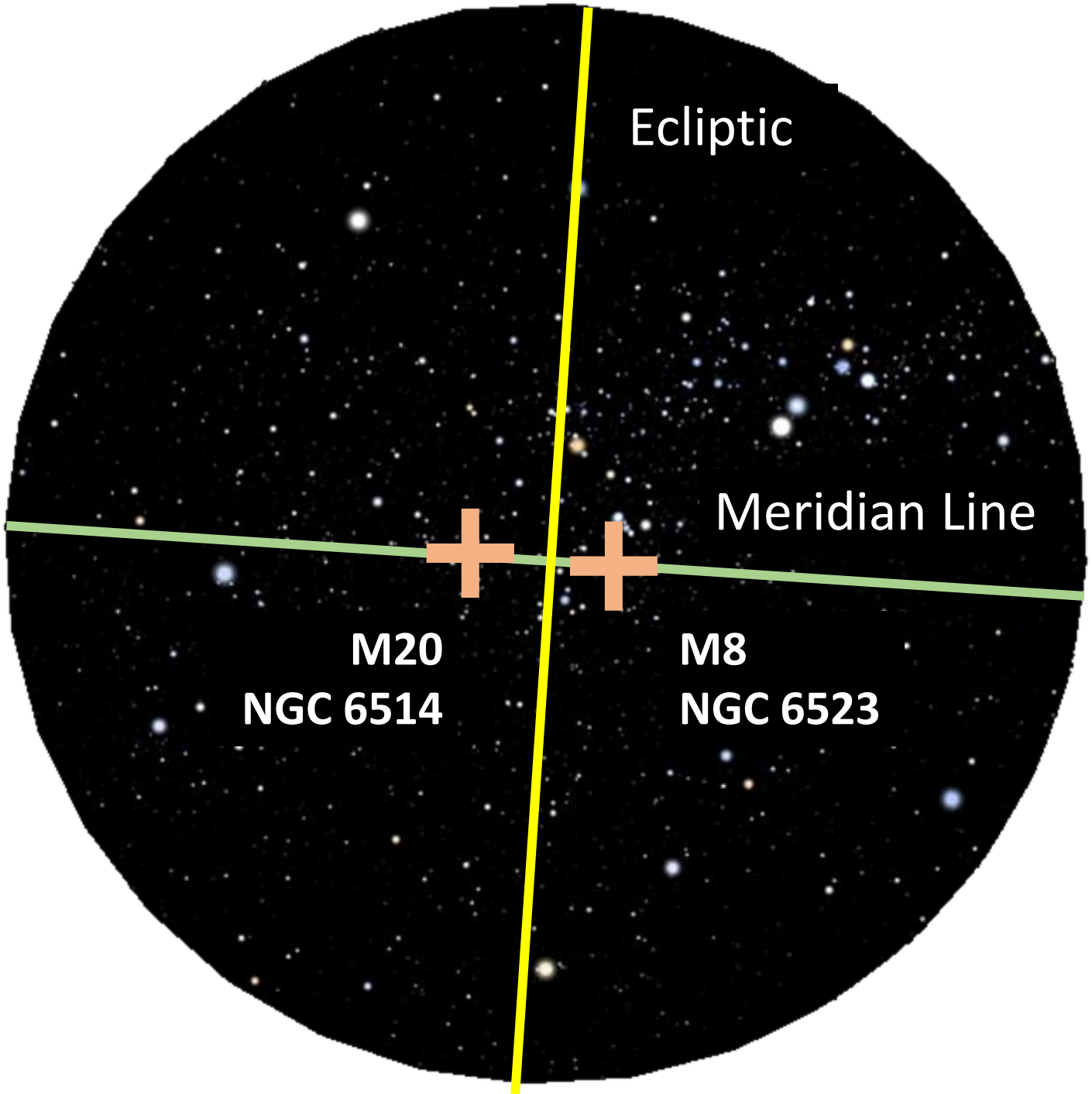
a) There is an alpha star, close to the celestial meridian line and which belongs to the boreal constellation. Using Bayer's designation, what is the name of this star?

Answer: α Lyr (correct value = 1.0 point)

b) Using one of the nomenclatures from Messier's Catalog, or New General Catalogue, which nebula is located at the intersection between the Celestial Meridian Line and the Ecliptic?

Answer: M8 or NGC 6523 or M20 or NGC 6514 (correct value = 1.0 point)
Any of the answers cited is correct


Meridian Line
α Lyr


Ecliptic
Meridian Line
M20
NGC 6514
M8
NGC 6523

PROBLEM 2

1. (Maximum value 4.0 points)

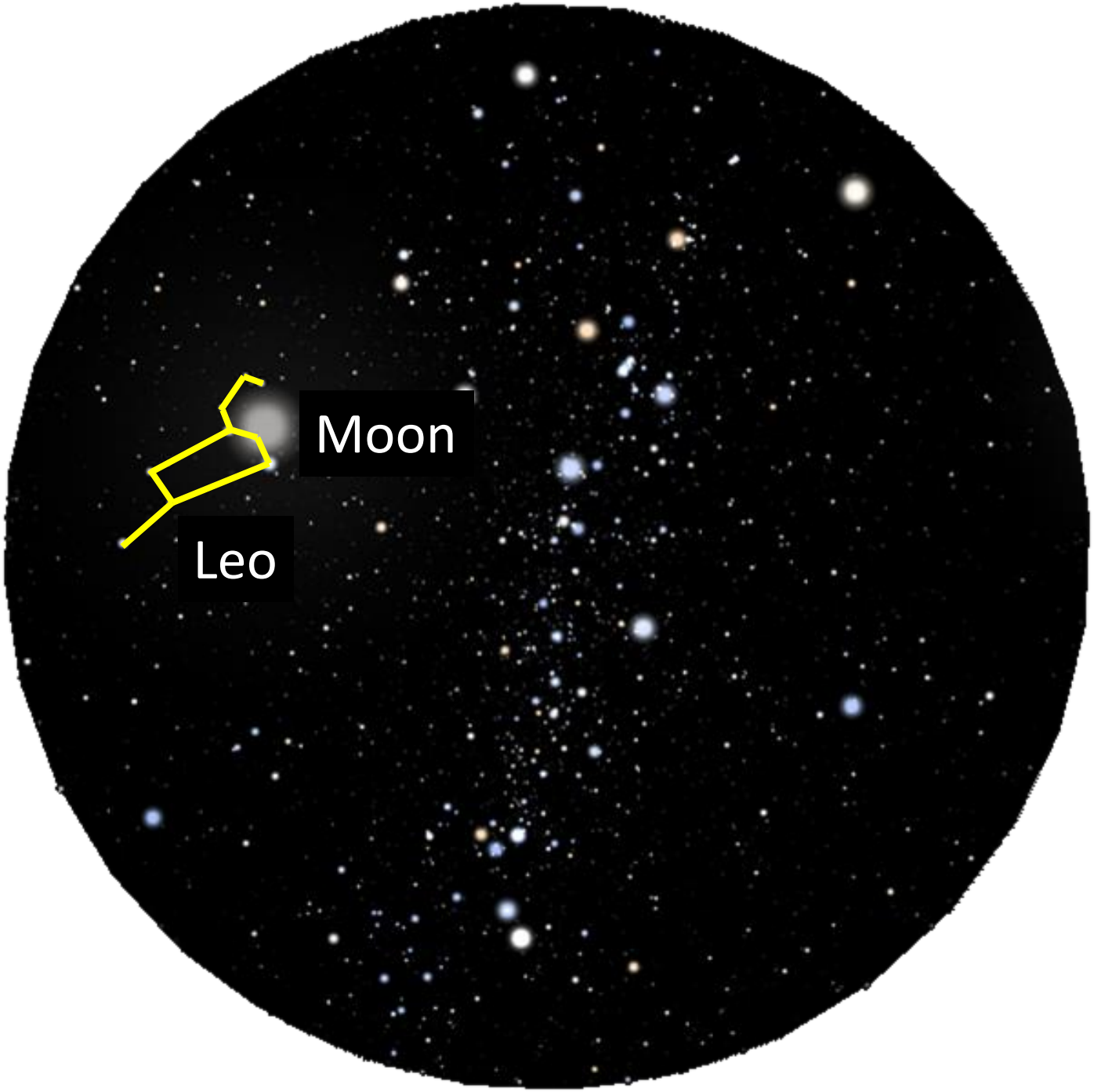
Observing the projected sky, answer:

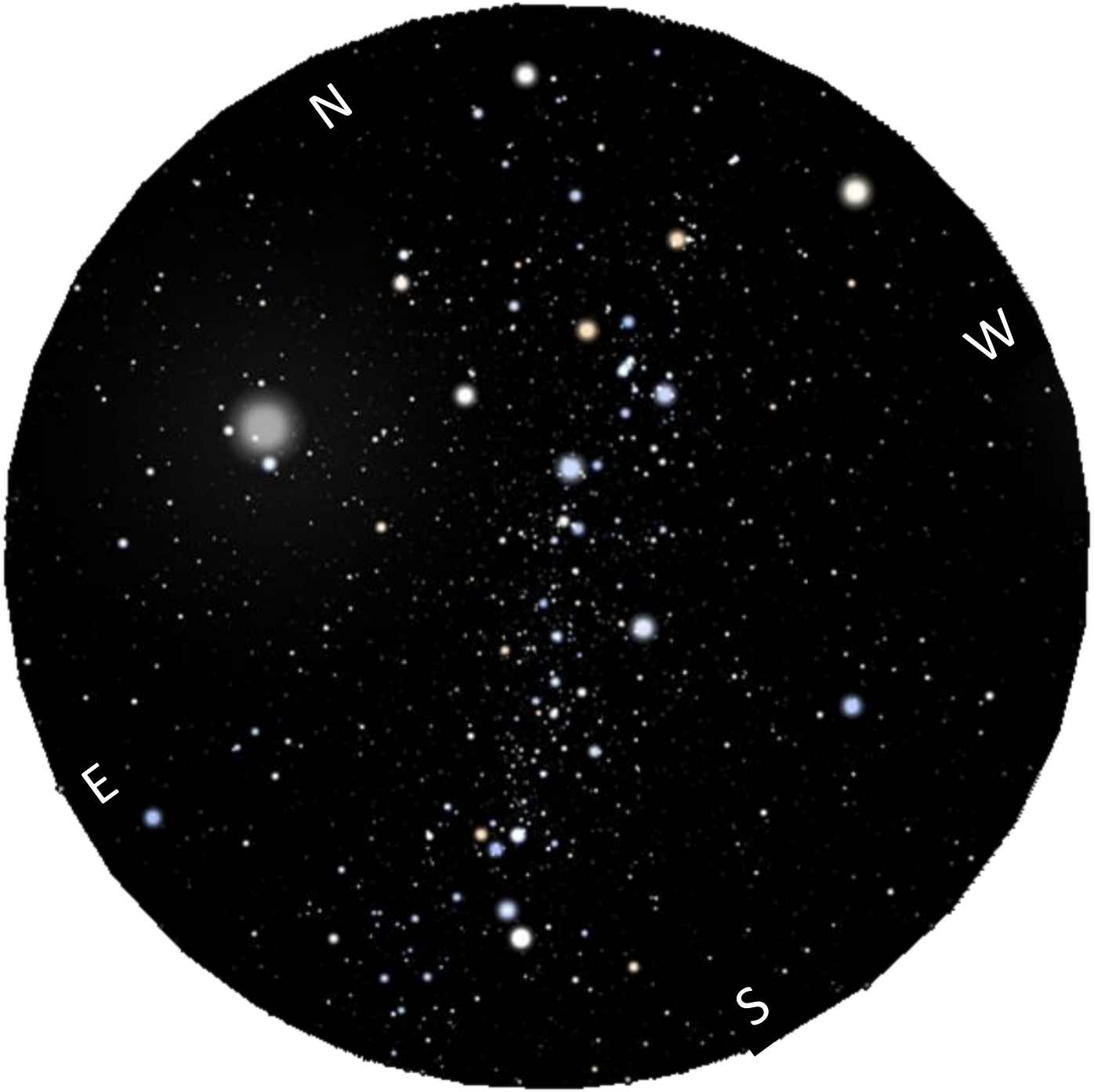
a) Using the nomenclature of the International Astronomical Union, in which constellation is the Moon located?

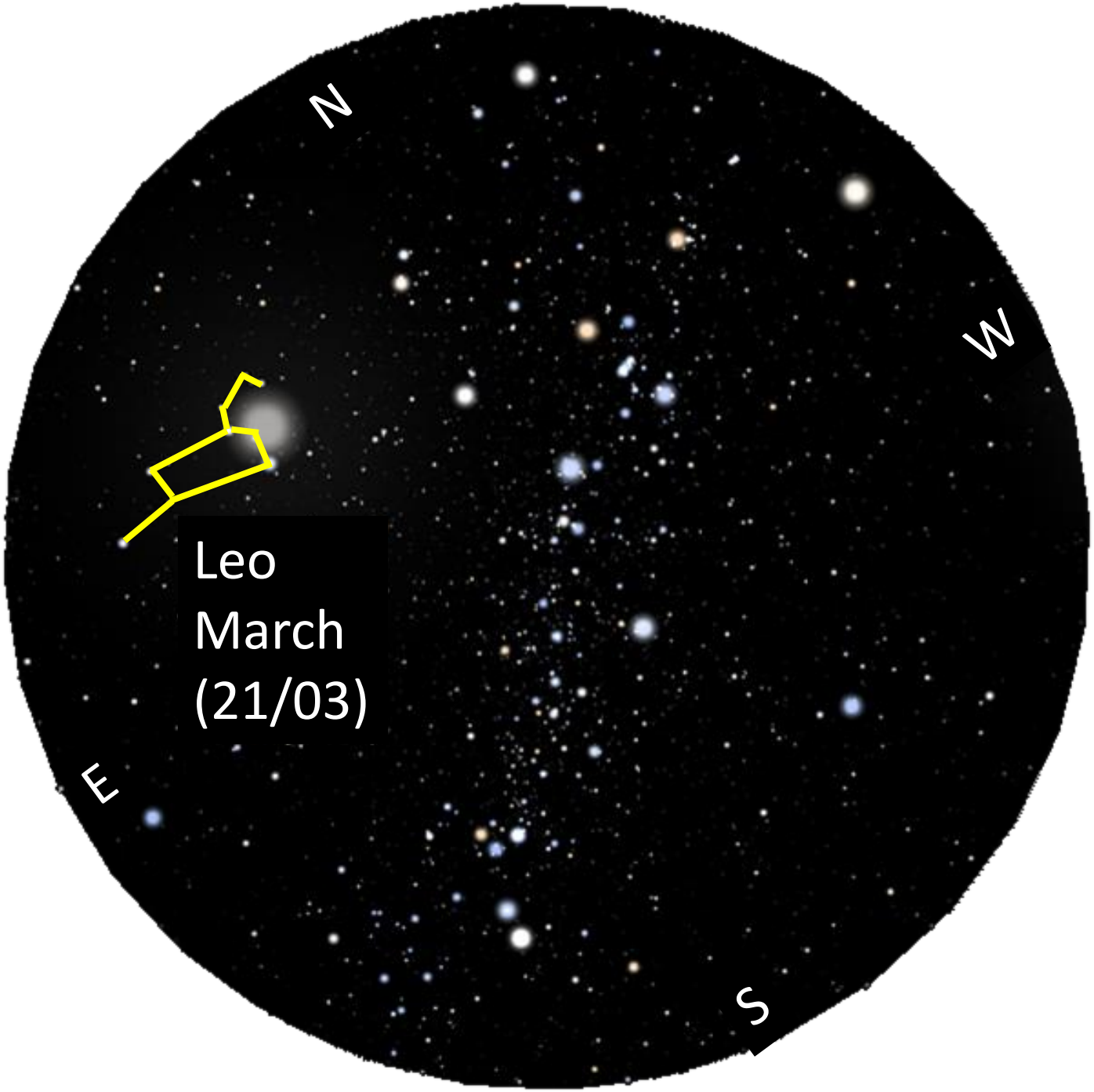
Answer: _____

b) Knowing that the Sun set 1 hour and 26 minutes ago in the projected sky, identify the current month.

Answer: _____


Moon
Leo


N
W
E
S



Sun set 1 hour and 26 minutes ago in the projected sky

1. (Maximum value 4.0 points)

Observing the projected sky, answer:

a) Using the nomenclature of the International Astronomical Union, in which constellation is the Moon located?
Answer: Leo
Correct value = 2.0 points

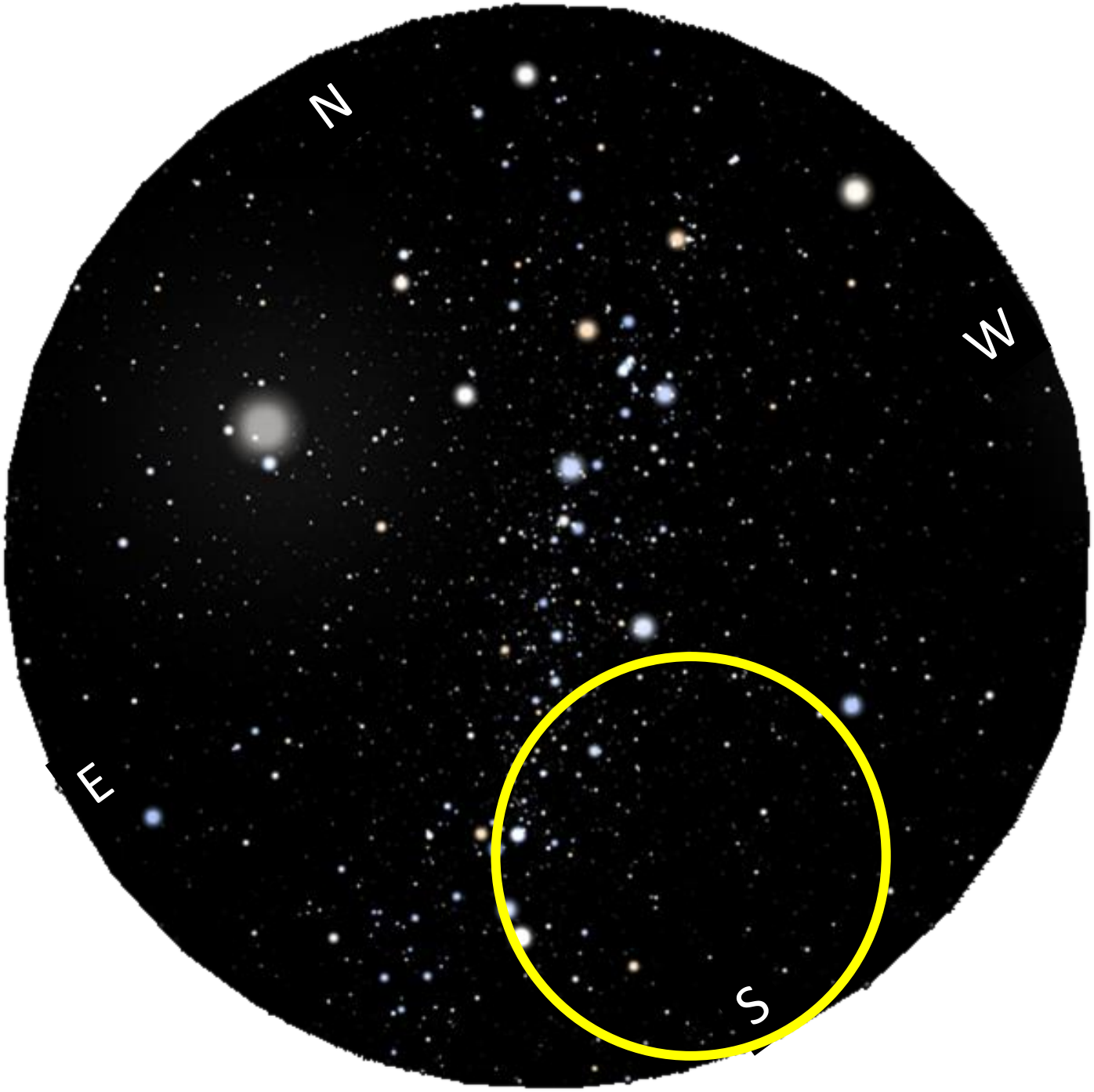
b) Knowing that the Sun set 1 hour and 26 minutes ago in the projected sky, identify the current month.
Answer: March
Correct value = 2.0 points

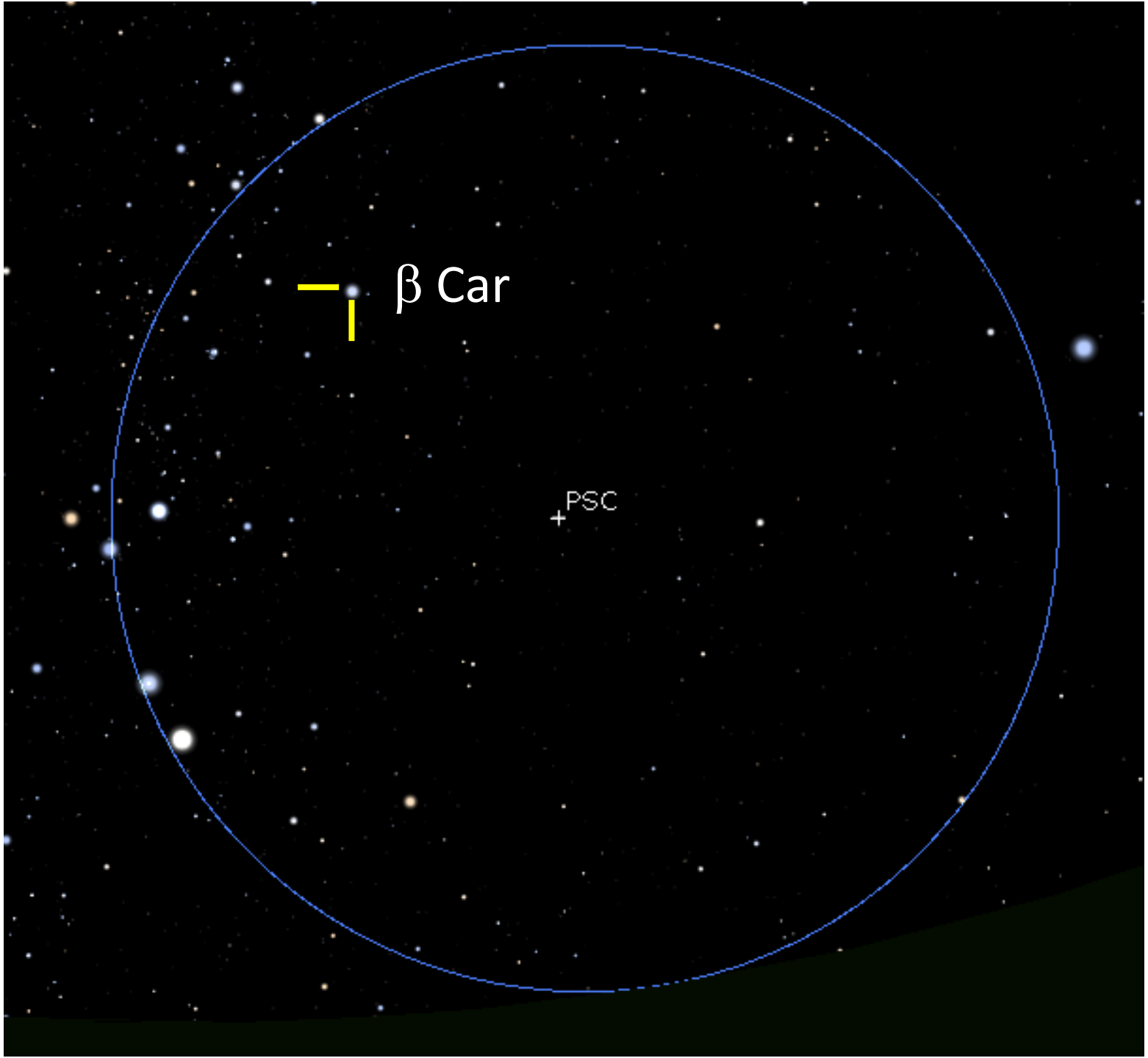
2. (1.0 point for each correct answer – Total 4.0 points)

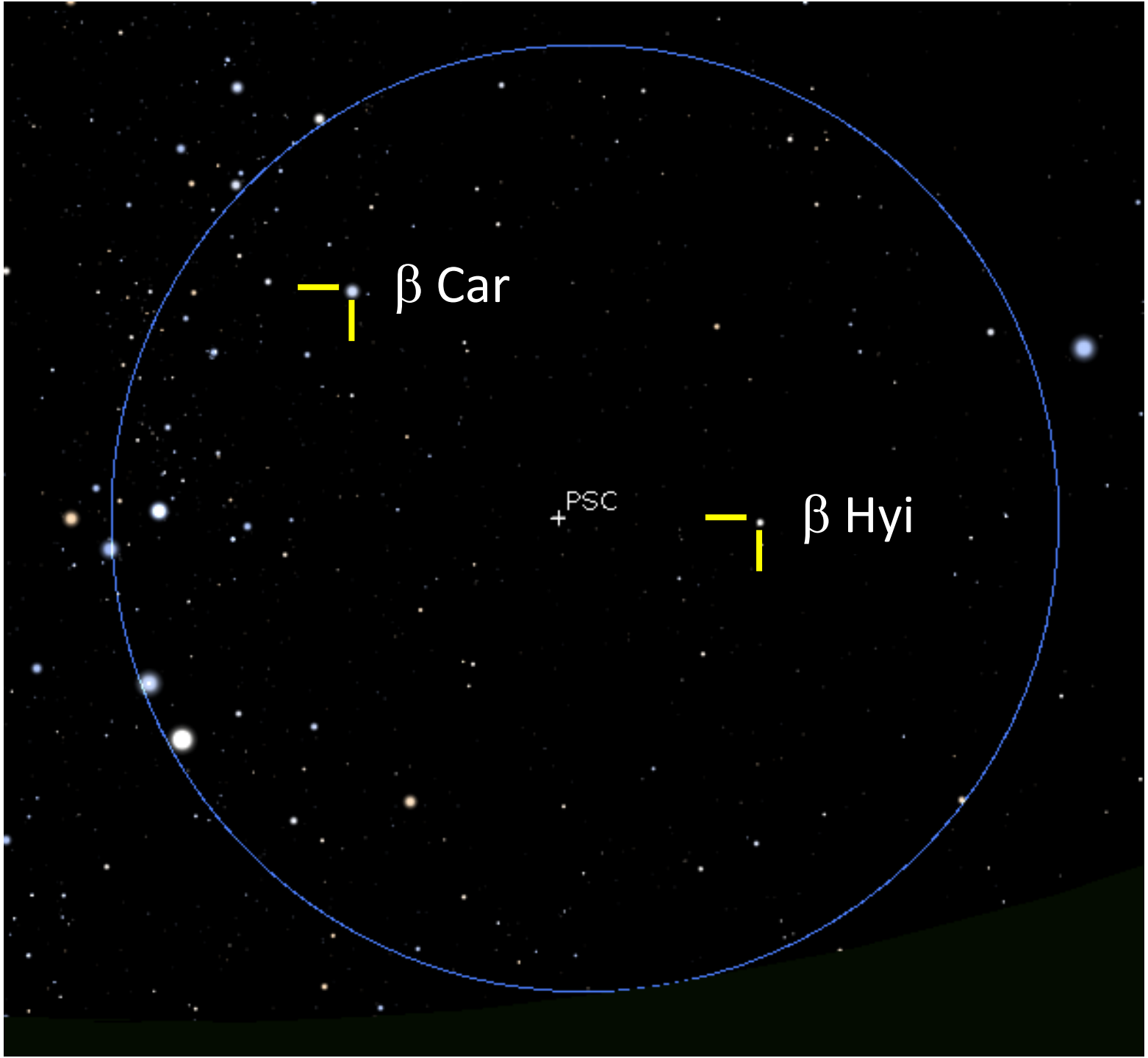
Mark the circumpolar stars with an X:

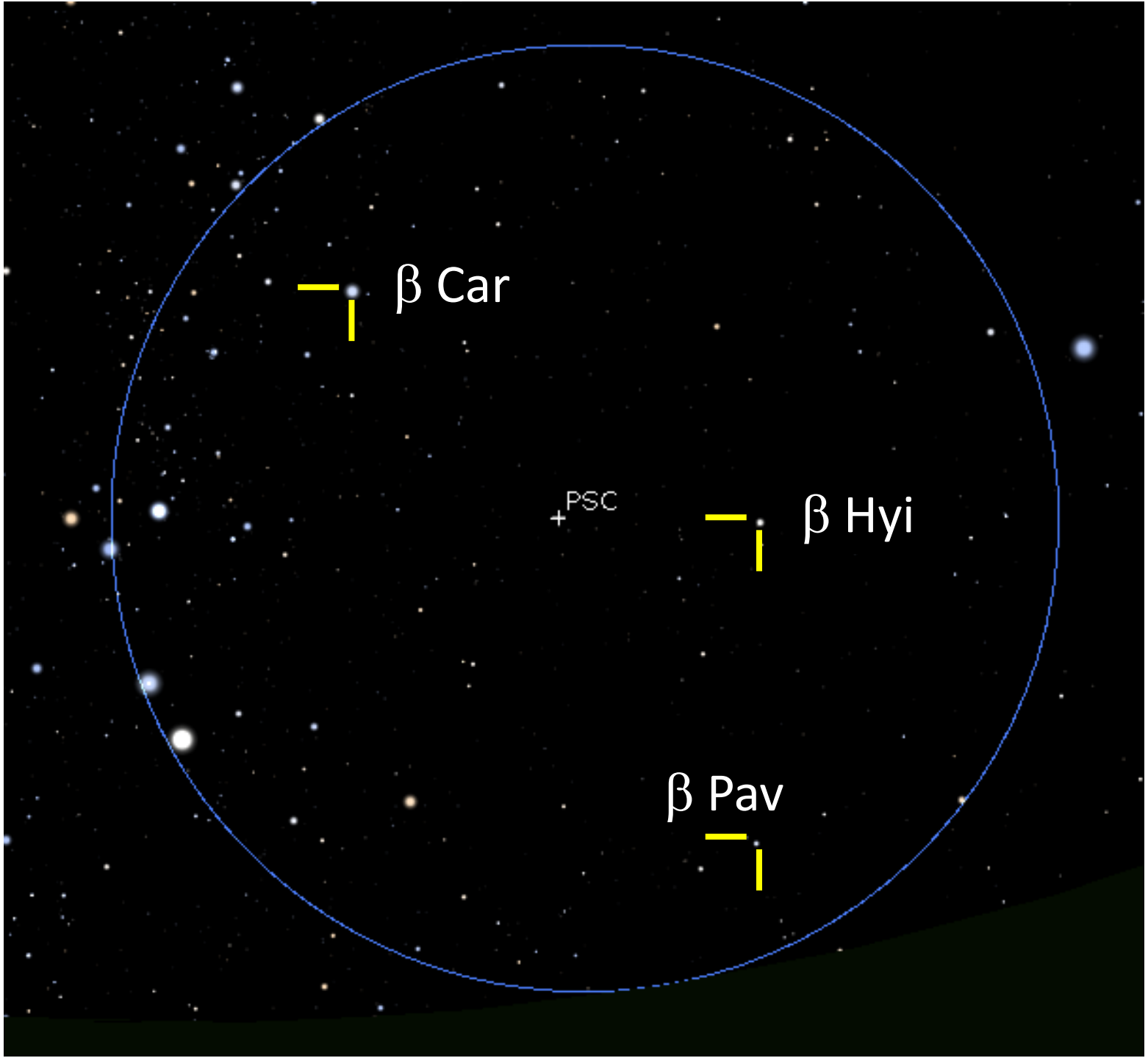
Answer:

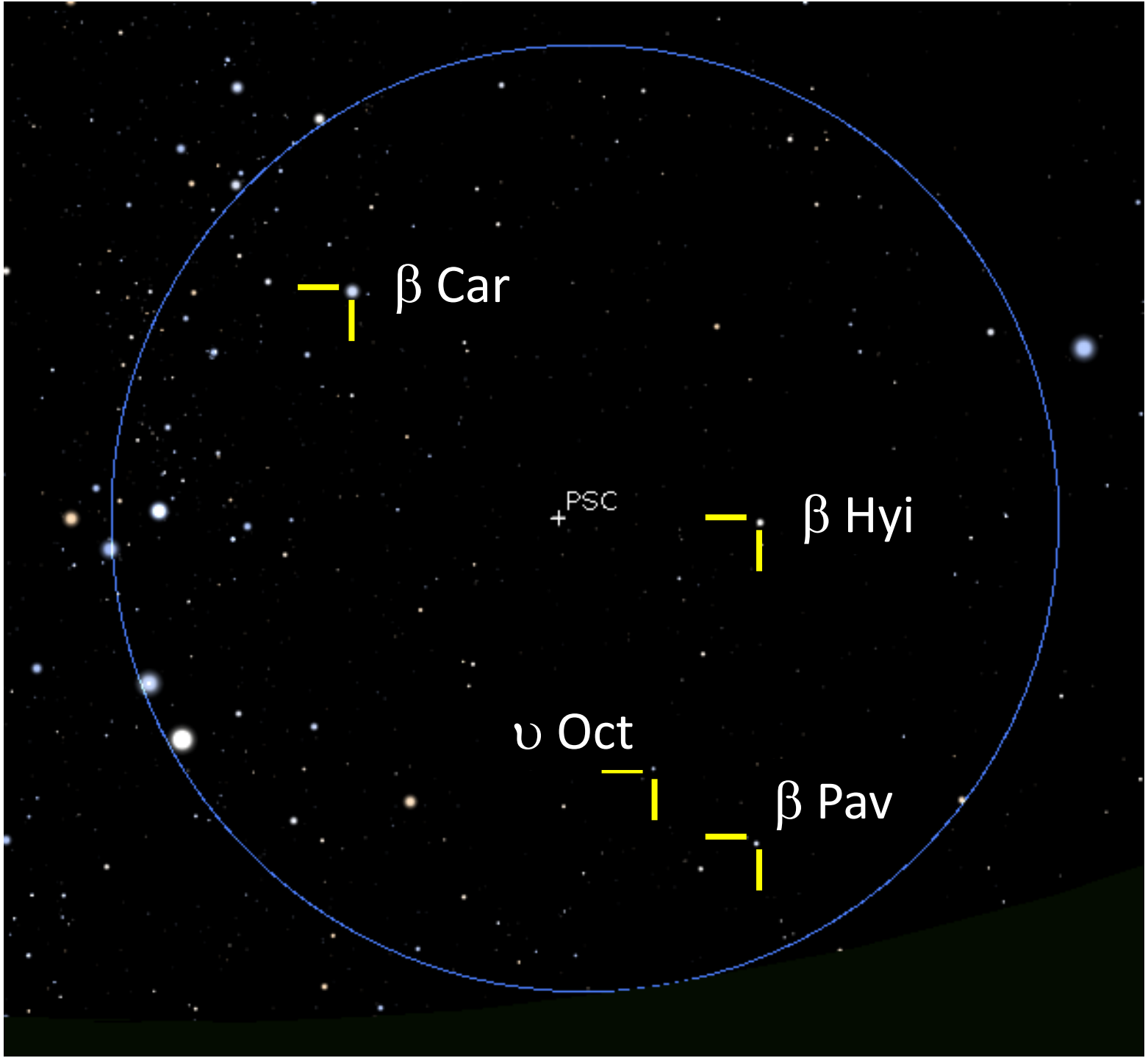
α Car	γ Cru	β Hyi	β Pav
β Crv	β Car	α Eri	υ Oct
α Sco	β Lup	γ Vel	α Car


N
W
E
S


β Car
PSC


β Car
PSC
β Hyi


β Car
PSC
β Hyi
β Pav


β Car
PSC
β Hyi
υ Oct
β Pav

2. (1.0 point for each correct answer – Total 4.0 points)

Mark the circumpolar stars with an X:

Answer:

		β Hyi	β Pav
	β Car		υ Oct

1.0 point for each correct answer

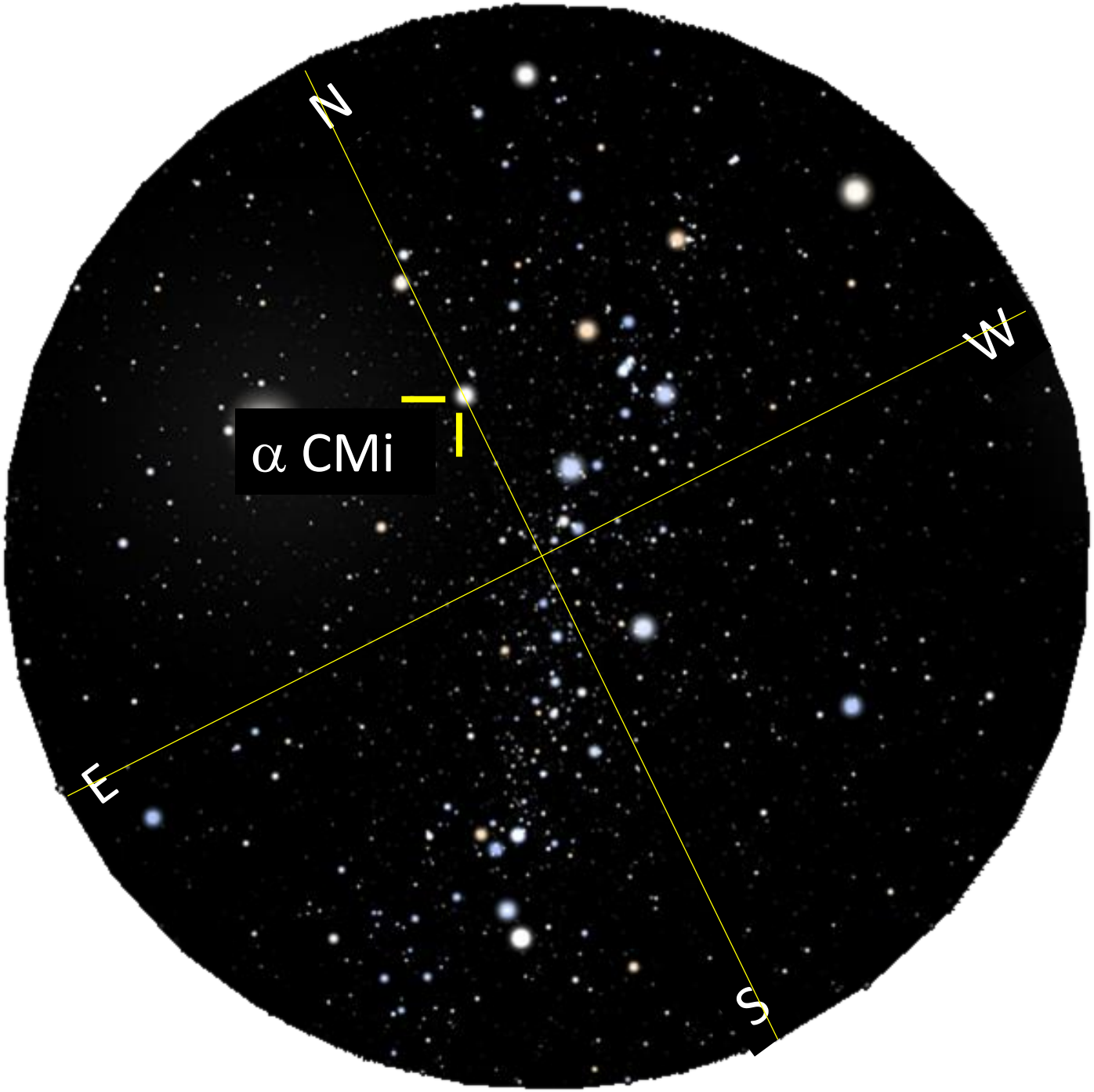
3. (1.0 point for each correct answer – Total 2.0 points)
A certain artificial satellite will pass through the celestial vault with the following coordinates:

Rise: Azimuth: 98^{o} 47’ and; Altitude: 7^{o} 31’
Maximum brightness: Azimuth: 2^{o} 27’ and; Altitude: 54^{o} 47’
Disappearance: Azimuth: 311^{o} 19’ and; Altitude: 26^{o} 47’

Using the references coordinates given above and the Bayer designation, write the name of the stars in the event of:

a) Maximum brightness:
Answer: _____

Azimuth: 2º 27’
Height: 54º 47’



3. (1.0 point for each correct answer – Total 2.0 points)

A certain artificial satellite will pass through the celestial vault with the following coordinates:

Rise: Azimuth: 98º 47’ and; Altitude: 7º 31’
Maximum brightness: Azimuth: 2º 27’ and; Altitude: 54º 47’
Disappearance: Azimuth: 311º 19’ and; Altitude: 26º 47’

Using the references coordinates given above and the Bayer designation, write the name of the stars in the event of:

Maximum brightness:
Answer: α CMi
Correct value = 1.0 point

3. (1.0 point for each correct answer – Total 2.0 points)
A certain artificial satellite will pass through the celestial vault with the following coordinates:

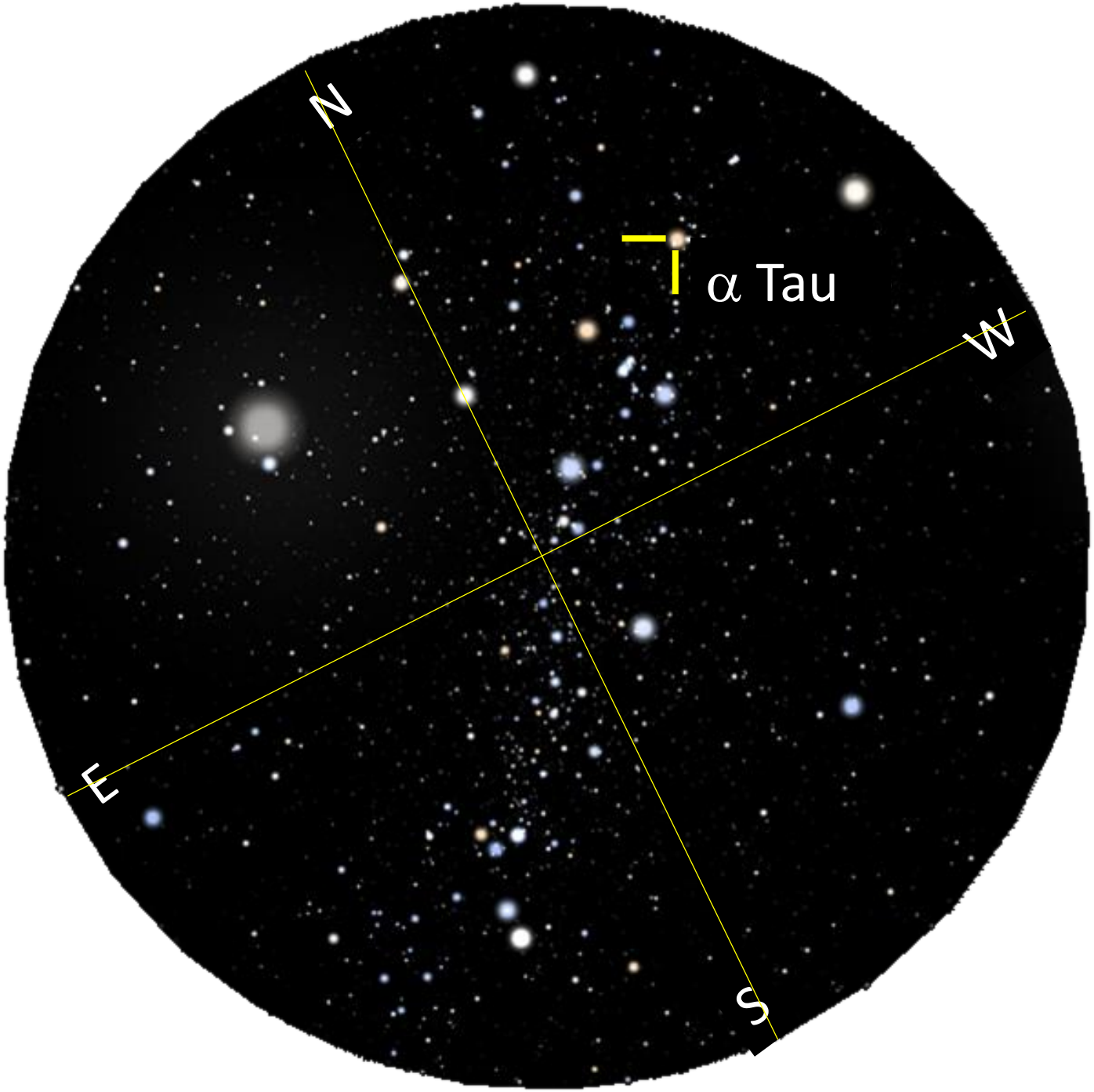
Rise: Azimuth: 98^{o} 47’ and; Altitude: 7^{o} 31’
Maximum brightness: Azimuth: 2^{o} 27’ and; Altitude: 54^{o} 47’
Disappearance: Azimuth: 311^{o} 19’ and; Altitude: 26^{o} 47’

Using the references coordinates given above and the Bayer designation, write the name of the stars in the event of:

b) Disappearance:
Answer: _____

Azimuth: 311º 19’

Height: 26º 47’



3. (1.0 point for each correct answer – Total 2.0 points)

A certain artificial satellite will pass through the celestial vault with the following coordinates:

Rise: Azimuth: 98º 47’ and; Altitude: 7º 31’
Maximum brightness: Azimuth: 2º 27’ and; Altitude: 54º 47’
Disappearance: Azimuth: 311º 19’ and; Altitude: 26º 47’

Using the references coordinates given above and the Bayer designation, write the name of the stars in the event of:

Disappearance:
Answer: α Tau
Correct value = 1.0 point