Lab 07a: moon, seasons, latitude, longitude challenge

Island Science questions: moon, seasons, latitude, longitude

1. At sunset, the moon is directly overhead, which phase is this?
2. Where will it be at sunset in the third phase?
3. Where is a full moon at sunrise?
4. ideally, how long is the night on March 21 anywhere in the world?
5. How long is the daytime on September 21 anywhere in the world?
6. why is our sunset not at 6 PM on the equinox?
7. on the first day of summer, is earth closest or farthest from the sun?
8. You are sailing from Tahiti to Hawaii, when can you first see Polaris at night?
9. What star could you use while in Tahiti to navigate?
10. Local noon for you is at 12:30 PM and you are between -10h GMT and -11h GMT, where are you?
11. Your latitude is 18°N, are you on land or at sea?
12. What is your local noon and latitude if you are on the north west Hawaiian islands?
13. What is your local noon and latitude if you are in Johannesburg, South Africa?
14. Find a person at +5.5h GMT and latitude 35°N
15. The moon is in third quarter, you see the moon directly overhead, what time is it?
16. You are zooming with folks in another country, and notice the shadow behind them is 35° pointing south, and their clock says noon, while it is 9 AM in London. Where are they?
17. You are planning a walk around campus in the next few months before graduation. What dates are best for this sort of walk if you want to see where you are by moonlight?
18. At sunrise, you see an image of the moon with the curved part facing east directly overhead. What phase is this, and where on the globe are you?
19. A full moon rises at sunset, what time will it be highest in the sky?
20. What time will it set?
21. A waxing crescent is visible in the western sky just after sunset, what phase comes next?
22. On June 21, which hemisphere receives more direct sunlight?
23. If you are at 23.5°N on the summer solstice, what does your shadow look like?
24. A kayaker says:” the moon rose around midnight, it looked half illuminated, and the bright side was on the left” What phase is the moon?
25. What time of month is it?

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