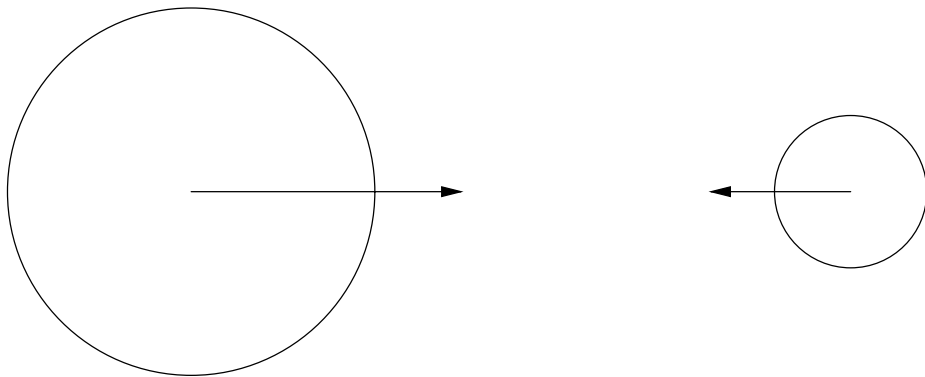


Day and Night

1. The moon rotates around the Earth in about 29 days
2. Each day on Earth is 24 hours
3. One half of 24 is ()
4. One quarter of 24 is ()

Gravitational Force between two objects

- depends on Mass
- depends on ()



Tides

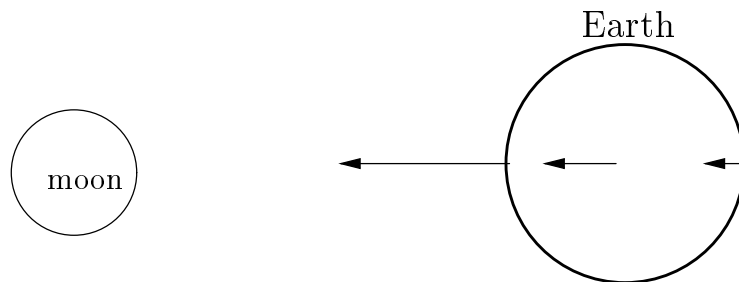
1. Consult

<http://csep10.phys.utk.edu/astr161/lect/time/tides.html>

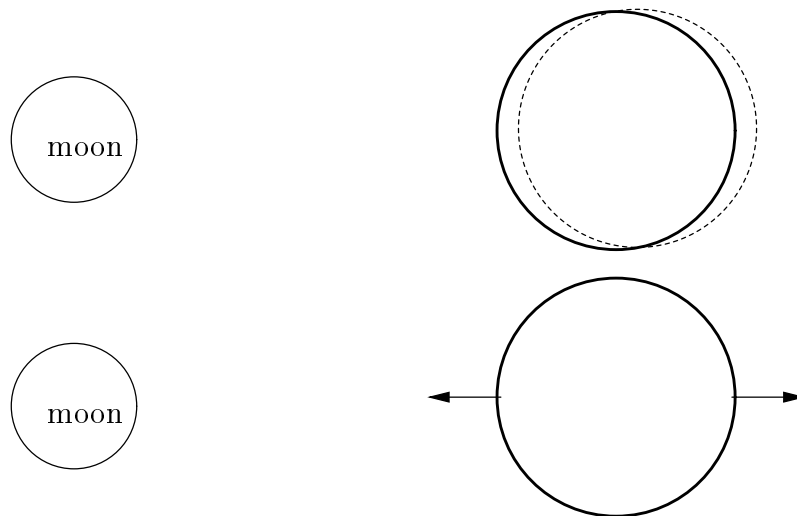
2. Refer to pictures on page 4.

- (a) Gravitational pull at different places of Earth.
- (b) Net pull with respect to center of the Earth; the pulls are on the left and right sides.
- (c) High tides due to the gravitational pull by the moon on the ocean.

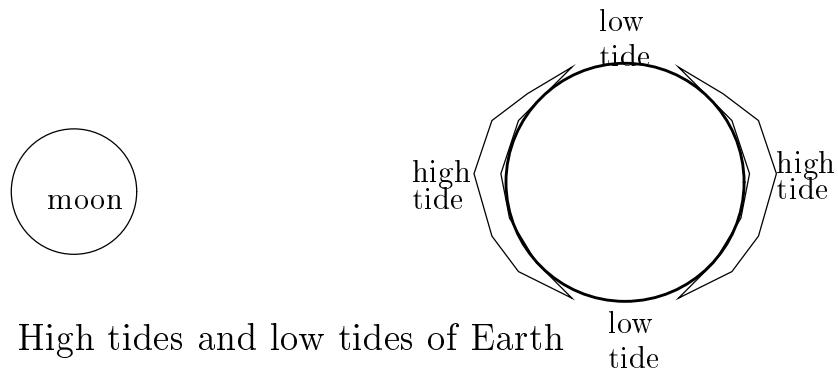
Why the ocean bulges on opposite sides of the earth



(a) Gravitational pull at different places due to the moon

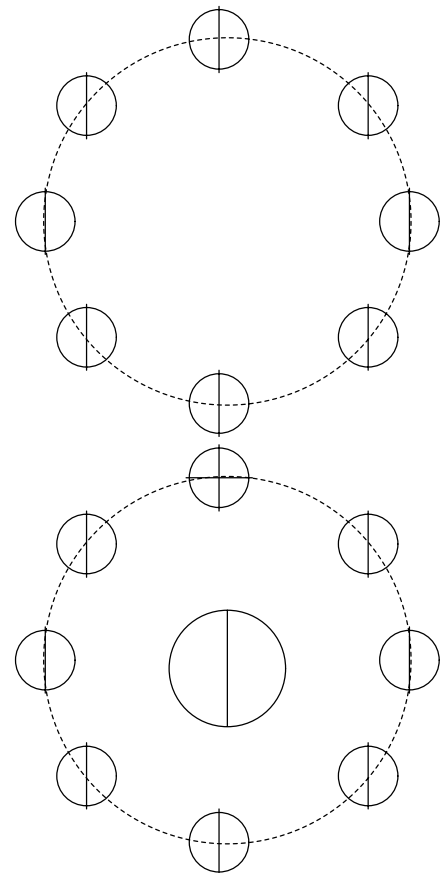
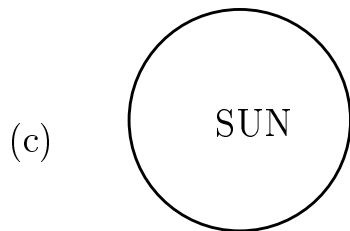
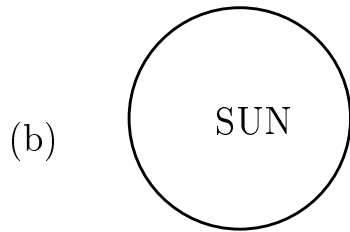
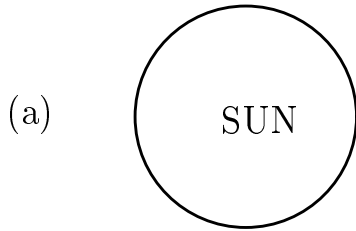


(b) Gravitational pull due to the moon with respect to the center of earth



(c) High tides and low tides of Earth

Phases of the moon

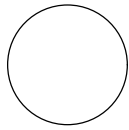


1. Shade night time on Earth in (a)
2. Shade night time on Moon in (b)
3. Shade night time on Moon and Earth in (c)

Phases of the moon

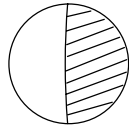


How to tell tides from the phase of the moon



High tides are at _____ and _____ .

Low tides are at _____ and _____



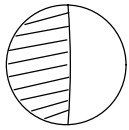
High tides are at _____ and _____

Low tides are at _____ and _____



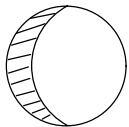
High tides are at _____ and _____

Low tides are at _____ and _____



High tides are at _____ and _____

Low tides are at _____ and _____



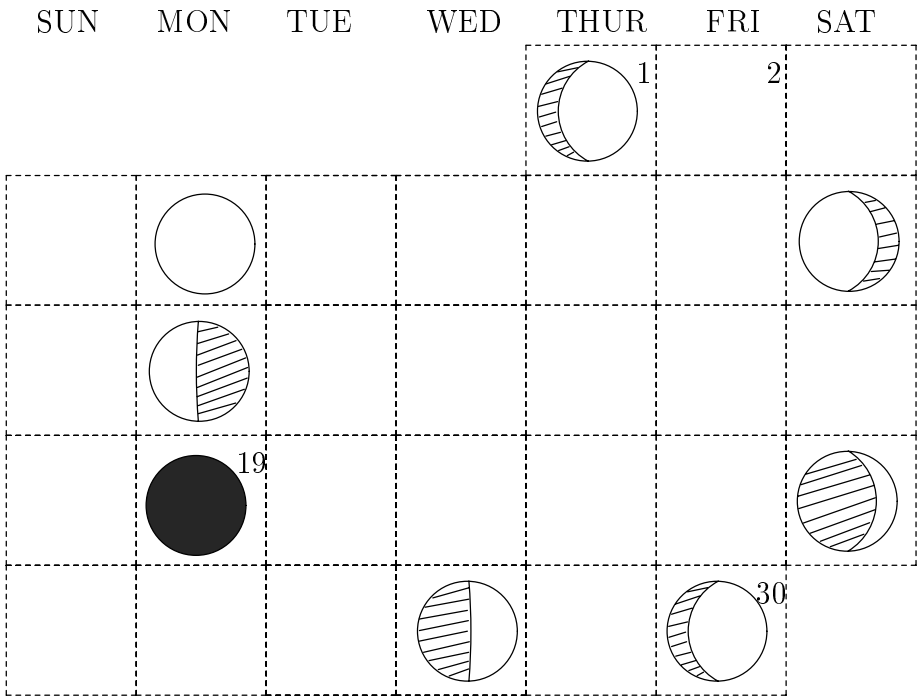
High tides are at _____ and _____

Low tides are at _____ and _____

Questions:

1. Consult:
<http://www.astro.wisc.edu/~dolan/java/MoonPhase.html>
2. Consult
<http://www.ci.santa-cruz.ca.us/pr/wharf/surfcamtides.html>
3. How many high tides are there within 24 hours ?
4. When are the high tides in Santa Cruz (April 19, 2004)?
5. Where is the moon during the high tides?
6. How many hours are there between high tides ?
7. When are the low tides in Santa Cruz (April 19, 2004)?
8. Where is the moon during the low tides?
9. How many hours are there between low tides ?
10. How many hours are there between high tide and low tide ?
11. Are the hours between high tides longer or shorter than 12 hours ? Why ?

Activity: Complete the April Lunar Calendar



APRIL 2004