Nom et Prénoms :	

## M1-SOAC-DC TR4 Chapter 4: Tides

Note:	/10
	, = 0



Barème	
	<b>Imagine a spherical planet</b> $(r=4727km,\ M=2,6792\times 10^{24}kg)$ entirely covered by ocean, rotating (1 revolution in 20 <i>hours</i> ). A satellite $(m=4,63\times 10^{21}kg)$ is in a permanent circular orbit, in the same direction as the planet's rotation. The orbital distance of this satellite is 500,000 $km$ and its period of revolution is 200 $hours$ .
/1	<b>1)</b> Show that the gravity field $(g)$ at the surface of this planet is $8 N/kg$ . The universal gravitational constant is $G = 6,672 \times 10^{-11} N \ m^2 \ kg^{-2}$ .
/2	2) What is the period (in <i>hours</i> ) and wavelength of the tide at the equator (in <i>km</i> )?

3) The average depth of the ocean being $H=3200\ m$ , what surface gravity wave?	t is the maximum speed of
4) At the equator, what is the speed needed to maintain the	equilibrium tide?
5) What is the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which the tide can be in equal to the lowest latitude at which latitude at la	uilibrium?
<b>6)</b> This planet orbits a large star ( $M_E = 5 \times 10^{30} kg$ ) at an av $km$ . Is the tide created by this star stronger than that create	verage distance of 300,000
	u by the satemite:
	u by the satemite:
	u by the Satemite!
	u by the Satellite!
7) From which TV series does this picture comes from?	CHUCK LORRE PRODUCTIONS, #6  Borabble fairs might be troubled to see three Y time in tonight's top- four Y blee. Disaster structed.