1) a. What is the radius of the largest rocky spheroid from which a human could throw a baseball so that it escapes from the spheroid's gravitational pull?

Here I imagine that the human can throw with Major League Baseball speed ($V \sim 100$ mph $\sim 45$ m/s), despite possibly being encumbered by a spacesuit...Applying Conservation of Energy to the baseball yields (assuming the baseball's mass $m$ is much less than the spheroid's mass $M$)

$$\text{KE}_i + \text{PE}_i = \text{KE}_f + \text{PE}_f \text{ or}$$

$$(1/2)mV_i^2 + (-GMm/R_i) = (1/2)mV_f^2 + (-GMm/R_f)$$

The ball just barely escapes the asteroid when $R_f$ goes to infinity and $V_f$ is zero; this yields the usual formula for escape velocity

$$V_i = (2GM/R_i)^{1/2}$$

Assuming the spheroid is roughly, well, spherical means $M = \rho(4\pi/3)R_i^3$; solving for $R_i$ assuming an spheroid with average density $\rho = 3$ times the density of water (which is typical of asteroids) yields

$$R_i = \frac{V_i}{(8\pi\rho G/3)^{1/2}} \sim \frac{(45\text{m/s})[8\pi\times(3000\text{kg/m}^3)\times(6.67\times10^{-11}\text{N}\cdot\text{m}^2/\text{kg}^2)]/3 \sim 35,000 \text{ meters} \sim 22 \text{ miles}}{35,000 \text{ meters} \sim 22 \text{ miles}}$$

So, 22 miles is the biggest spheroid from which you could launch a baseball so that it didn't come back in this model...but anything from 12 miles (seriously dense metal asteroid) to 38 miles (ice-like asteroid) seems like an acceptable answer to me...I've always been fascinated by Ida, an asteroid about this size and density (though far from spherical), and its orbiting moon, Dactyl, less than a mile across, and wondered whether one might succeed in pitching objects from one to the other!

b. If, instead, the ball is thrown into a circular orbit around this same spheroid, how long will the pitcher have to wait before catching it after it orbits once? Compare this to the space shuttle orbital time.

This time we invoke Newton's Second Law and use the familiar formula for the acceleration toward the center of a circular orbit, $a_{\text{centripetal}} = V^2/R$ and the speed around a circle, $V = (2\pi R/T)$:

$$GMm/R^2 = m V^2/R = m(2\pi R/T)^2/R.$$ 

Upon solving for the time of orbit squared, and substituting the for the mass of a sphere, I find

$$T^2 = 4\pi^2 R^3/(GM) = 3\pi/\rho G!$$

What's amazing about this is it is independent of the size of the spheroid!...Thus all surface-hugging moons orbit in about the same time, depending only weakly on the density of the object being orbited...The shuttle is a good example, orbiting the Earth in about 1.6 hours, and if we use typical asteroid densities ($3000$ kg/m$^3$) as before, I get something very similar, just under two hours to wait for the baseball on our asteroid, even though the asteroid is more than two orders of magnitude smaller in diameter than the Earth. Very cool!