		$c = 2.998 \times 10^8\,\mathrm{m/s}$	speed of light
		$G = 6.67 \times 10^{-11}$	gravitational constant
$r_s = \frac{2GM}{c^2}$	Schwarzschild radius	$M_S = 1.989 \times 10^{30}\,\mathrm{kg}$	Sun's mass

Problem 1 crushing experience. Hoover hovers at $r = 60 \times 10^3\,\mathrm{m}$ for a black hole that has a mass of 15 solar masses.

a) Calculate the Schwarzschild radius r_s of the black hole.

b) Calculate the "g-force" (in Newtons) that Hoover experiences,

$$F = \frac{GMm}{r^2\sqrt{1 - \frac{r_s}{r}}},$$

where M is the mass the black hole and $m = 70\,\mathrm{kg}$ is Hoover's masss.

c) Repeat parts a) and b) for a 5 solar mass black hole.

Project find the escape velocity of a black hole; discuss energy in relativity; use energy to derive an expression for $\Delta r/\Delta t$ for something that falls toward a black hole; discuss the physical meaning of $\Delta r/\Delta t$.