1. a
2. c
3. b
4. (a-b) The fields are only zero on the plane that is precisely in the middle of the two wires.
5. $F = -\mu_0 L I^2/2\pi s$, so the wires repel
6. a persistent current loop could be created with a superconductor, also with a current loop made with classical materials, if the leads are close together then their magnetic fields will cancel out.
7. (a) $\oint B \cdot dl = \mu_0 I_{\text{encl}}$ and $\int_A E \cdot dA = \rho_{\text{enc}}/\epsilon_0$, (b) one is a line integral while one is a surface integral, one deals with currents and the other deals with charges, one deals with magnetism, the other deals with electricity, (c) Ampere's Law is properly written as $\oint B \cdot dl = \mu_0 I_{\text{encl}} + (1/c^2)\partial\Phi_E/\partial t$.
8. $I_{\text{enc}} = 2\pi r B/\mu_0$
9. 0.54 [T]
10. (a) Set the magnetic force and the gravitational force equal to each other and solve for the height: $z_{\text{eq}} = \left(\frac{3\mu_0\mu^2}{2\pi Mg}\right)^{1/4}$
    (b) Take the derivative of the force and see that $F' = -6\mu_0\mu^2/2\pi z^5$, so $U'' = -F' = 6\mu_0\mu^2/2\pi z^5$, and $z > 0$, so the equilibrium is stable.