137 HW 4 Due 4/30/19

$\star$ All numbered exercises are from Zwiebach

1. Recall that we write $[X] = x$ if $X \sim M^x$ where M is a mass and we set $\hbar = c = 1$. Find $[X]$ for the following quantities X in D spacetime dimensions.

   (a) Voltage V.

   (b) Current I.

   (c) Resistance R.

   (d) Torque τ.

   (e) Moment of inertia I.

   (f) The area A of a S^{D-2} sphere (which can surround an object in $D-1$ space dimensions.

   (g) The electric flux of an electrically charged object through the S^{D-2}.

   (h) Specific heat (heat capacity per unit mass).

   (i) Pressure.

   (j) S/k_B where $k_B T$ has units of energy.

2. 4.5

3. 5.2.

4. 5.7.

5. 6.4