There are two problems from the book and two additional problems labeled A, B. If you want more practice, then do more problems from the book, or see me. In particular, I cannot assign problems like "find the MGF" for most of our usual named distributions, because they're worked out in the book. But maybe you should compute them, as practice, and check them against the book?

Exercise 5.16 (about Bernoulli and binomial)

Exercise 5.18 (about a geometric X and Y dependent on X)

A. Suppose that X has PDF $f_X(x) = a/x^{a+1}$ on support $[1, \infty)$, where the parameter a is positive. Working from the definition of the MGF, show that X does not have an MGF. (Hint: Think about the function that you are trying to integrate.)

In class very soon, we are going to take the (natural) logarithm of an MGF $m_X(t)$. This should worry you, because sometimes the logarithm is undefined.

B. Explain why $\log m_X(t)$ is well defined, for $t \approx 0$, for any X that has an MGF. Your explanation should include an annotated sketch of the MGF for $t \approx 0$.