

Book Problems:

- Chap 2.1 Exercises 4, 14, 18
- Chap 2.2 Exercises 4, 6, 7
- Chap 2.3 Exercises 2, 4, 8, 16, 20

Additional Problems:

A1. Recall that the number e is defined by the limit

$$e := \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n.$$

In class we interpreted this as the amount of money you will have after one year if you invest \$1 in a bank account with 100% yearly rate of return. Using the same reasoning we can interpret the limit

$$\lim_{n \rightarrow \infty} \left(1 + \frac{r}{n}\right)^n = ?$$

as the amount you will have after one year if you invest \$1 in a bank account with yearly rate of return $r > 0$. (The rate $r = 1$ corresponds to 100%.) Use the **substitution method** to evaluate this limit. [Hint: Let $n = mr$ and note that $n \rightarrow \infty$ as $m \rightarrow \infty$.]