Special Problem II.B-23

Consider the microwave system below, consisting of **two amplifiers** and **one filter** (with bandwidth B).

Assume the **filter** has an **insertion loss** of 0 dB.

The power of a **signal** into the first amplifier is $(8.7 \times 10^9)k$ **Watts**, where k is **Boltzman's Constant**.

The temperature of the **noise** into the **input** of the first amplifier is **290 degrees Kelvin**.

The **signal-to-noise ratio** at the **output** of this system is 10.0.

Determine the **bandwidth** B of the filter.