1. What things does your phone do (would you like your phone to do) at the same time that it is playing an MP3?

2. Assume decoding am MP3 produces 44,000 samples per second, and each sample takes, on average, 500 instructions to produce. How many instructions per second must a processor complete in order to support the decoding operation?

3. Assume the processor on a phone can run 10^9 instructions per second (e.g., 1 instructction per cycle at $1\,\text{GHz}$). What fraction of this processor capacity is consumed by the decoding operations from Question 2?

4. Think about: How can you use the remaining capacity to address the items in Question 1 using the single processor?