Questions for recitation 24 March 2021

1. Exercises 11.4: #29-32, 40-43, 45-46.

   Exercises 11.3: #22, 34, 41-44

2. Determine if each of the series below converges or diverges. If possible, for each convergent series, determine the sum of the series. Be sure to fully motivate your answers.

   (a) $\displaystyle\sum_{n=3}^{\infty}(-1)^n(\cos[1])^n$

   (b) $\displaystyle\sum_{n=0}^{\infty}\frac{2^n+5}{3^n}$

   (c) $\displaystyle\sum_{n=3}^{\infty}\frac{1}{(n+2)\ln(n+2)}$

   (d) $\displaystyle\sum_{n=0}^{\infty}\frac{n^3-n^{2/3}+18}{\sqrt{n^7-n^5+2}-1}$

   (e) $\displaystyle\sum_{n=3}^{\infty}\frac{\ln n}{\ln(\ln n)}$

3. Find the sum of the series

$$1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{6}+\frac{1}{8}+\frac{1}{9}+\frac{1}{12}+\frac{1}{16}+\frac{1}{18}+\cdots$$

   where the terms are the reciprocals of the positive integers whose only prime factors are 2s and 3s.