Quiz 4 10am Q4 for the 10am class is Thursday Oct 25. It covers §§11.8-11.9: power series

Book
11.5  r736  5, 7, 9
11.6  r742  7, 11, 35, 45
11.8  r751  3, 7, 11, 19
11.9  r757  3, 5, 13, 25

Q4 10am Practice
Find a power series in $x$ for the following; write the first four non-zero terms, then write using summation notation:

1) Do the series converge or diverge? Why?

   a) $\sum \frac{1}{(1 - x)^2}$
   
   b) $x \ln(1 - x^2)$
   
   c) $e^{-x^2}$
   
   d) $\frac{x}{(1 + x)^2}$
   
   e) $\int \frac{1}{(1 - x^2)^2} \, dx$

General Practice
1) Do the series converge or diverge? Why?

   a) $\sum \frac{k^{2k}}{k!}$
   
   b) $\sum \frac{(k + 1)!}{k^k}$
   
   c) $\sum \frac{k^{2k}}{k^2 + k}$
   
   d) $\sum \frac{k^{2k}}{(k!)^2}$

2) Do the following converge? Why?

   c) $\sum_{k=3}^{\infty} \frac{(-1)^{k+1}}{\ln k}$
   
   d) $\sum_{k=1}^{\infty} (-1)^k \frac{1}{k + 1}$