We know that
\[
\frac{1}{1-x} = 1 + x + x^2 + x^3 + x^4 + \cdots = \sum_{n=0}^{\infty} x^n \quad \text{for all } |x| < 1
\]

Use it to write the following related functions as power series. Make sure to specify the interval of convergence!

1. \[
\frac{2}{1-x}
\]

2. \[
\frac{1}{1+x} = \frac{1}{1-(-x)}
\]
3. \[
\frac{1}{1 - x^2}
\]

4. \[
\frac{x}{1 - x}
\]

5. \[
\frac{1}{2 + x} = \frac{1}{2(1 + x/2)}
\]