

$$2) \sum_{k=3}^{10} \frac{1}{k^2} = \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2} + \frac{1}{6^2} + \frac{1}{7^2} + \frac{1}{8^2} + \frac{1}{9^2} + \frac{1}{10^2}$$

$$b) \sum_{k=1}^{10} \frac{1}{2k+1} = \frac{1}{2+1} + \frac{1}{2 \cdot 2+1} + \frac{1}{2 \cdot 3+1} + \dots + \frac{1}{2 \cdot 10+1}$$

$$= \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \dots + \frac{1}{21}$$

$$c) \sum_{k=1}^n \frac{(k+1)!}{k} = \frac{2!}{1} + \frac{3!}{2} + \frac{4!}{3} + \dots + \frac{(n+1)!}{n}$$

$$= \sum_{k=1}^n \frac{(k+1) \cdot k \cdot (k-1)!}{k} = \sum_{k=1}^n (k+1)(k-1)!$$

$$= 2 + 3 \cdot 1! + 4 \cdot 2! + 5 \cdot 3! + \dots + (n+1) \cdot (n-1)!$$