

Math 3B, Homework 1 Solutions

$$5. \sum_{k=1}^4 \sqrt{k} = \sqrt{1} + \sqrt{2} + \sqrt{3} + \sqrt{4}.$$

$$6. \sum_{k=3}^5 (k-1)^2 = (3-1)^2 + (4-1)^2 + (5-1)^2 = 2^2 + 3^2 + 4^2 = 29.$$

$$9. \sum_{k=0}^3 (x+1)^k = (x+1)^0 + (x+1)^1 + (x+1)^2 + (x+1)^3 \\ = 1 + (x+1) + (x+1)^2 + (x+1)^3$$

$$10. \sum_{k=0}^4 k^x = 1^x + 2^x + 3^x + 4^x = 1 + 2^x + 3^x + 4^x.$$

$$17. \ln(2) + \ln(3) + \ln(4) + \ln(5) = \sum_{k=2}^5 \ln(k)$$

$$18. \frac{3}{5} + \frac{4}{6} + \frac{5}{7} + \frac{6}{8} + \frac{7}{9} = \sum_{k=1}^5 \frac{k+2}{k+4}$$

$$19. -\frac{1}{4} + \frac{1}{6} + \frac{2}{7} + \frac{3}{8} = \sum_{k=0}^3 \frac{2k-1}{2k+4}$$

$$20. \frac{1}{1} + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots + \frac{1}{2^n} = \sum_{k=0}^n \frac{1}{2^k}.$$