

$$1. \sum_{j=-3}^{-1} -4j^0 = -4 \times (-3)^0 - 4 \times (-2)^0 - 4 \times (-1)^0 = -4 - 4 - 4 = -12$$

Hence $y=-12$

$$2. \sum_{j=4}^6 -3j^2 = -3 \times 4^2 - 3 \times 5^2 - 3 \times 6^2 = -48 - 75 - 108 = -231$$

Hence $y=-231$

$$3. \sum_{j=3}^6 2j^1 = 2 \times 3^1 + 2 \times 4^1 + 2 \times 5^1 + 2 \times 6^1 = 6 + 8 + 10 + 12 = 36$$

Hence $x=36$