

Solutions

2.1 A Count chromosomes by centromeres under the stated convention. DNA amount and chromosome number are different quantities. Crossing over and independent assortment contribute to meiotic variation.

2.2 mitotic index = $18/120 \times 100 = 15\%$.

2.3 False. Replication doubles DNA amount without immediately doubling the chromosome count. Meiosis does not simply produce two identical diploid cells.

2.4 mitotic index. mitotic index means Fraction of scored cells undergoing mitosis.

3.1 Both indices are 15%. Counts have different denominators. Duration inference additionally needs a representative asynchronous steady population and cycle information; a snapshot alone is insufficient.