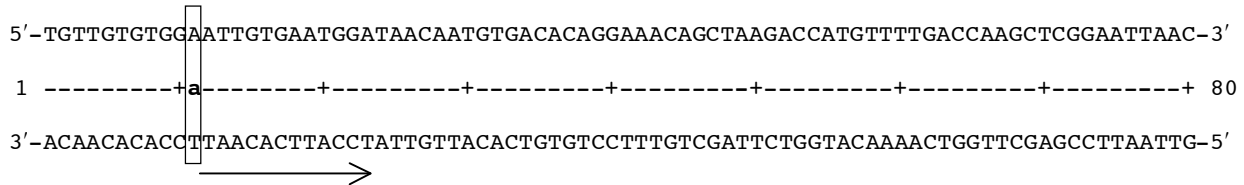
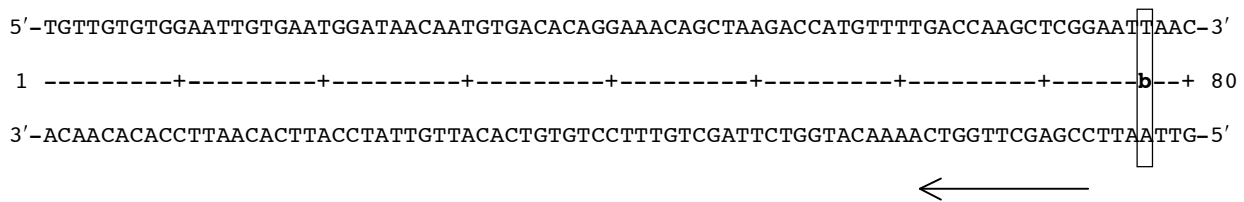


**(4.1.2)** Shown below is an 80 base pair segment of a hypothetical gene. It includes the promoter and the first codons of the gene. The sequences of both strands of the DNA duplex are shown: the top strand reads 5' to 3' left to right (1 to 80); the bottom, complimentary, strand reads 5' to 3' right to left (80 to 1).

a) Synthesis of the mRNA starts at the boxed A/T base pair indicated by the (a) below (#11) and proceeds left to right on the sequence below. Write the sequence of the first 10 nucleotides of the resulting mRNA.



b) Suppose the synthesis of mRNA started at the boxed T/A base pair indicated by the (b) below (#77), and proceeded right to left. What would be the first five nucleotides of the mRNA?



c) The mRNA you just wrote has almost the same sequence as one of the DNA strands. Which DNA strand is this? What is the difference between it and the mRNA sequence?

d) What are the first three amino acids of the polypeptide that would result from translation of the mRNA from part (a)? A table of the genetic code can be found in your textbook.

e) Does translation terminate at the UAA in the mRNA corresponding to the boxed bases at positions 48-50? Why or why not?