DNA Base Pairing Worksheet

There are base pairing rules for writing complimentary DNA strands for a given strand.

A pairs with T
C pairs with G

In RNA, A pairs with U, instead of T.

Write the complimentary DNA strand for each given strand of DNA.

1. CGTAAGCGCTAATTA
2. TCTTAAATGATCGATC
3. AATGAATAGCTAGCTT
4. GGCATTGCAGCATCAG
5. CGTTAGCATGCTTCAT
6. ACTAACGCTAGCTAGC

Now write the mRNA strand for the given DNA strand.

7. ATGTCGCTGATACTGT
8. GAAGCGATCAGTTACG
9. AATGAATAGCTAGCTT
10. GGCATTGCAGCATCAG
11. CGTTAGCATGCTTCAT
12. ACTAACGCTAGCTAGC
Write the tRNA sequence for the given strand of mRNA
13. AGGUCAUGCAUGGGCAUGCAU

14. AGAGAUUCAGCUAGCAGAUA

15. GUCAUCGAUCGAUCGGAUGCC

16. UUUCAGUCAGCUAGCGAUCGU

Now you will translate the **amino acid** sequence for the given tRNA strand. Remember that codons are 3 base pairs long.

17. AUG CAC UGU CCU UUC GCU GAC

18. GAG AUC UGG UUG GAA UCG

19. AGC GUA UUA ACG UAU CAU

20. AGU CGA UCG AUG CGG AUG AUA

21. GUC GUC GAU AGC UAU CAU GCA

Transcribe the following DNA strand. Then translate the tRNA strand you wrote.

22. TGAGTCGACTGGCTGACCCTAGAC

23. CTTGGCTTATGGGTGGTTCGCTCGC
The following are pieces of mRNA. Give the DNA strand from which it was transcribed.

24. GAGAUCUGGUUGGAAUCG

25. AGCGUAUUAACGUAUCAU

Complete the table below showing the sequences of DNA, mRNA codons, tRNA anticodons and the amino acids. Remember the genetic code is based on mRNA codons.
1. Using the following piece of DNA, give the mRNA molecule and the amino acid sequence for which it codes.

DNA- A T A T A A A C G A G G A A A T T C C G G G C G
mRNA
tRNA
Amino acids:

2. Use the mRNA sequence to find the DNA sequence and the amino acid sequence.

DNA
mRNA- A U G C C U A C A U G U G G U G U A A C C U U A
tRNA
Amino acids

For each codon below, give the tRNA anticodon.

3. UUC _______ 4. AUC _______
5. CCG _______ 6. CGU _______

7. Give all the possible Anti-codons for the amino acids listed below. (Use page 244 in your text).

Histidine (His) _________________________________________________
Isoleucine (Ile) _________________________________________________
Arginine (Arg) _________________________________________________
Tryptophan (Trp) _______________________________________________