Convert the following degrees, minutes, seconds to decimal degrees using the "long-hand method". **_SHOW YOUR WORK !!!_**
  (8 pts. each)

1)　　　75° 16' 43" =

2)　　　14° 03' 25" =

3)　　167° 31' 15" =

Convert the following decimal degrees to degrees, minutes, seconds using the "long-hand method". **_SHOW YOUR WORK !!!_**
  (8 pts. each)

4)　　325.8396° =

5)　　77.3952° =

6)　　259.0097° =

Find the average of angles repeated seven times in the field with the accumulated value shown. ***SHOW YOUR WORK !!!***
  (8 pts.)

7) $\dfrac{261°\ 44'\ 09"}{7}$ =

8)   The following interior angles were observed in an eight-sided polygon. Determine the total of the angles (7 pts.) and the angular error of these field measured angles (7 pts.).

$$
\begin{array}{r}
78°\ 27'\ 30" \\
151°\ 58'\ 17" \\
123°\ 29'\ 14" \\
98°\ 02'\ 49" \\
139°\ 17'\ 35" \\
333°\ 07'\ 52" \\
77°\ 22'\ 55" \\
\underline{78°\ 14'\ 59"}
\end{array}
$$

total   =   _____   error   =   _____

9) Based on the sketch shown below (not to scale) solve for angle "X".
All lines are straight. "AB" and "CD" are parallel. "EF" and "GH" are parallel.
(20 pts.)

D   B

Angle "X" = _____

H

F

40° 30' 20"

G

132° 05' 15"

E

Angle "X"   150° 30' 15"

C   A