

Perform the following calculations using $\boxed{\text{HMS+}}$ and/or $\boxed{\text{HMS–}}$.

$$\begin{array}{r} 1) \quad 54^\circ 35' 24'' \\ + 86^\circ 59' 44'' \\ \hline 141^\circ 35' 08'' \end{array}$$

$$\begin{array}{r} 5) \quad 47^\circ 39' 25'' \\ - 47^\circ 38' 47'' \\ \hline 00^\circ 00' 38'' \end{array}$$

$$\begin{array}{r} 9) \quad 112^\circ 52' 18'' \\ +349^\circ 49' 50'' \\ -272^\circ 51' 51'' \\ \hline 189^\circ 50' 17'' \end{array}$$

$$\begin{array}{r} 2) \quad 112^\circ 24' 15'' \\ +101^\circ 22' 47'' \\ \hline 213^\circ 47' 02'' \end{array}$$

$$\begin{array}{r} 6) \quad 116^\circ 16' 16'' \\ - 90^\circ 12' 12'' \\ \hline 26^\circ 04' 04'' \end{array}$$

$$\begin{array}{r} 10) \quad 352^\circ 58' 21'' \\ -272^\circ 02' 53'' \\ +141^\circ 57' 14'' \\ -132^\circ 52' 42'' \\ \hline 90^\circ 00' 00'' \end{array}$$

$$\begin{array}{r} 3) \quad 13^\circ 55' 42'' \\ + 99^\circ 51' 19'' \\ \hline 113^\circ 47' 01'' \end{array}$$

$$\begin{array}{r} 7) \quad 234^\circ 45' 56'' \\ +102^\circ 14' 52'' \\ -144^\circ 32' 23'' \\ \hline 192^\circ 28' 25'' \end{array}$$

$$\begin{array}{r} 11) \quad 36^\circ 52' 11'' \\ - 44^\circ 56' 54'' \\ + 19^\circ 26' 27'' \\ - 0^\circ 10' 33'' \\ \hline 11^\circ 11' 11'' \end{array}$$

$$\begin{array}{r} 4) \quad 176^\circ 45' 28'' \\ - 52^\circ 47' 34'' \\ \hline 123^\circ 57' 54'' \end{array}$$

$$\begin{array}{r} 8) \quad 10^\circ 33' 56'' \\ + 97^\circ 55' 40'' \\ - 88^\circ 45' 28'' \\ \hline 19^\circ 44' 08'' \end{array}$$

$$\begin{array}{r} 12) \quad 77^\circ 53' 43'' \\ - 33^\circ 33' 33'' \\ - 41^\circ 33' 55'' \\ - 2^\circ 46' 15'' \\ \hline 00^\circ 00' 00'' \end{array}$$

The following operations may require you to use decimal degrees for specific steps in the solution. Use $\boxed{\text{HMS+}}$ and $\boxed{\text{HMS–}}$ whenever possible, and shift to decimal degrees only when absolutely necessary.

$$13) \quad \frac{197^\circ 34' 55'' + 197^\circ 34' 47'' + 197^\circ 35' 05''}{3} = 197^\circ 34' 56''$$

$$14) \quad \frac{47^\circ 57' 33'' - 106^\circ 55' 19'' + 64^\circ 03' 07''}{7} = 00^\circ 43' 37''$$

$$15) \quad \frac{255^\circ 56' 45'' + 316^\circ 35' 35'' + 198^\circ 53' 54'' - 47^\circ 42' 16'' + 356^\circ 16' 02''}{3} = 360^\circ 00' 00''$$

Be very careful on this one !! ...

$$16) \quad \frac{(50') (40') \sin (14^\circ 12' 11'' + 9^\circ 26' 39'' + 13^\circ 13' 22'')}{2} = 600.00 \quad \text{sq.ft.}$$