Key

Add or subtract the angles as indicated: (2 pts. each)

Examples: 21° 41' 12" + 11° 32' 54" = 32° 73' 66" = 33° 14' 06"

33° 14' 06" = 32° 73' 66"
–11° 32' 54" –11° 32' 54"
21° 41' 12"

1) 46° 27' + 22° 24' = ***68 51'***

2) 56° 24' + 33° 26' = ***89° 50'***

3) 35° 52' + 47° 39' = ***82° 91' = 83° 31'***

4) 21° 46' 52" + 40° 25' 26" = ***61° 71' 78" = 62° 12' 18"***

5) 46° 19' 22" + 35° 51' 40" = ***81° 70' 62" = 82° 11' 02"***

6) 13° 49' 58" + 12° 21' 32" = ***25° 70' 90" = 26° 11' 30"***

7) 78° 46' – 35° 23' = ***43° 23'***

8) 49° 16' = ***48° 76'*** – 37° 49' = ***–37° 49'*** = ***11° 27'***

9) 78° 56' 12" – 49° 15' 09" = ***29° 41' 03"***

10) 43° 15' 26" = ***42° 74' 86"*** – 37° 21' 38" = ***–37° 21' 38"*** = ***5° 53' 48"***

Find the average of angles that were doubled in the field with accumulated values as shown: (2 pts. each)

Example: $\frac{311° 17' 25"}{2}$ = $\frac{310° 76' 85"}{2}$ = 155° 38' 42.50"

11) $\frac{237° 27' 17"}{2}$ = $\frac{\textbf{236° 86' 77"}}{\textbf{2}}$ = ***118° 43' 38.50"***

12) $\frac{329° 47' 16"}{2}$ = $\frac{\textbf{328° 106' 76"}}{\textbf{2}}$ = ***164° 53' 38.00"***

Find the average of angles that were repeated six times in the field with accumulated values as shown: (2 pts. each)

13) $\frac{390° 13' 24"}{6}$ = $\frac{\textbf{390° 12' 84"}}{\textbf{6}}$ = ***65° 02' 14.00"***

14) $\frac{548° 32' 11"}{6}$ = $\frac{\textbf{546° 150' 131"}}{\textbf{6}}$ = ***91° 25' 21.83"***

Key

Change from degrees/minutes/seconds to degrees/decimals of a degree: (2 pts. each)
Example: $36° 14' 52'' = 36° 14' + \frac{52'}{60} = 36° 14.8667' = 36° + \frac{14.8667°}{60} = 36.2478°$

15) 24° 30' ***24.5000°***

16) 36° 45' ***36.7500°***

17) 69° 11' ***69.1833°***

18) 16° 24' 30" ***16.4083°***

19) 173° 32' 56" ***173.5489°***

20) 127° 17' 23" ***127.2897°***

21) 68° 44' 05" ***68.7347°***

22) 223° 37' 48" ***223.6300°***

23) 118° 55' 11" ***118.9197°***

24) 356° 18' 43" ***356.3119°***

Change from degrees/decimals of a degree to degrees/minutes/seconds: (2 pts. each)
Example: 42.2769° = 42°+(60)(0.2769)'
= 42° 16.6140' = 42° 16'+(60)(0.6140)"
= 42° 16' 36.84"

25) 13.1761° ***13° 10' 33.96"***

26) 21.5647° ***21° 33' 52.92"***

27) 68.7342° ***68° 44' 03.12"***

28) 96.1649° ***96° 09' 53.64"***

29) 145.8822° ***145° 52' 55.92"***

30) 221.3478° ***221° 20' 52.08"***

31) 303.1078° ***303° 06' 28.08"***

32) 356.1595° ***356° 09' 34.20"***

Key

Find the sum of the measured interior angles (2 pts.), the true sum for the number of angles measured (2 pts.), and indicate the error of measurement (2 pts.) for each of the polygons below:

33)
83° 23'
105° 27'
158° 31'
53° 19'
139° 18'
538° 118'

539° 58'
(– 540° 00')

error = ***– 0° 02'***

34)
96° 34'
111° 42'
183° 12'
88° 57'
139° 21'
100° 18'
717° 184'

720° 04'
(– 720° 00')

error = ***+ 0° 04'***

35)
98° 08' 05"
149° 16' 12"
134° 12' 55"
93° 20' 10"
152° 39' 47"
174° 32' 50"
97° 51' 11"
897° 178' 190"

900° 01' 10"
(– 900° 00' 00")

error = ***+ 0° 01' 10"***

Fill in the blanks in each sentence: (2 pts. each)

36) Two lines that lie in the same plane and never intersect are ***parallel***.

37) An angle of less than 90° is an ***acute*** angle.

38) An angle of 90° is a ***right*** angle.

39) An angle of more than 90°, but less than 180°, is an ***obtuse*** angle.

40) Two angles are said to be ***complementary*** if their sum is 90°.

41) Two angles are said to be ***supplementary*** if their sum is 180°.

42) A line that cuts two or more lines is a ***transversal***.

43) Two triangles are ***congruent*** if their corresponding sides and corresponding angles are equal.

44) Two triangles are ***similar*** if their corresponding angles are equal and their corresponding sides are proportional.