

Complete the following sentences:
(3 pts. each)

- 1) The sum of the interior angles of a 9-sided polygon is **1260°**.
- 2) The sum of the interior angles of a 4-sided polygon is **360°**.
- 3) Two straight lines that lie in the same plane but never intersect are called **parallel**.
- 4) When two straight lines intersect they form a total of four (4) angles. Any two of these angles, if they are adjacent, are called **supplementary** because the sum of these angles equals **180** degrees, and, any two of these angles, if they are opposite each other, are **equal**.
- 5) Two right triangles that have equal angles and unequal, but proportional, sides are called: (circle appropriate)
 - a) **similar**
 - b) congruent
 - c) complimentary
 - d) all of the above

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

- 6) $57^{\circ} 15' 23'' =$ **57.2564°**
- 7) $14^{\circ} 30' 20'' =$ **14.5056°**
- 8) $67^{\circ} 14' 45'' =$ **67.2458°**
- 9) $38^{\circ} 58' 10'' =$ **38.9694°**

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

$$10) \quad 25.9236^\circ = \quad \mathbf{25^\circ 55' 24.96''}$$

$$11) \quad 117.6864^\circ = \quad \mathbf{117^\circ 41' 11.04''}$$

$$12) \quad 159.9997^\circ = \quad \mathbf{159^\circ 59' 58.92''}$$

$$13) \quad 53.2468^\circ = \quad \mathbf{53^\circ 14' 48.48''}$$

Find the average of angles repeated six times in the field with accumulated values as shown. **SHOW YOUR WORK !!!**
(5 pts. each)

$$14) \quad \frac{259^\circ 26' 12''}{6} = \quad \mathbf{43^\circ 14' 22.00''}$$

$$15) \quad \frac{304^\circ 03' 00''}{6} = \quad \mathbf{50^\circ 40' 30.00''}$$

$$16) \quad \frac{157^\circ 24' 15''}{6} = \quad \mathbf{26^\circ 14' 02.50''}$$

17) The following interior angles were observed in a five-sided polygon. Determine the total of the angles (5 pts.) and the angular error of these field measured angles (5 pts.).

78° 22' 30"

110° 28' 17"

153° 29' 54"

58° 20' 44"

139° 17' 05"

$$\text{total} = \quad \mathbf{\underline{539^\circ 58' 30''}}$$

$$\text{error} = \quad \mathbf{\underline{- 0^\circ 01' 30''}}$$

- 18) Based on our "right triangle" class discussion and the sketch shown below... put "T" by the true statements and "F" by the false statements below (8 pts. total)

F For all right triangles, the sum of the interior angles = $(n + 2)180$.

F Side "c" squared minus side "b" squared = side "a".

T The hypotenuse is always the longest side.

T Angle "C" minus angle "A" = angle "B".

F All right triangles are congruent.

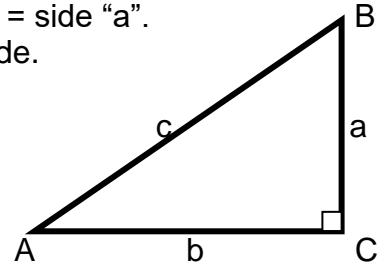
T $(a)^2 + (b)^2 = (c)^2$

F Angles "A", "B" & "C" are complimentary.

T In similar right triangles...

as one side increases in length...

the other sides increase proportionally.



- 19) Based on the not to scale sketch below, solve for angle "X". All lines are straight. "AB" and "CD" are parallel. "EF" and "GH" are parallel. (12 pts.)

