Exam 2 – Part II: Chapters 4 & 5 **NAME** _____

Math 97, Geometry, Section 3385

Fall 2009: Michael Orr

100 points

Show all work to receive full credit. You may use a calculator. CHECK YOUR WORK!!!!

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1. (12 pts) Given the figure shown below with $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ and $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$. Determine the measures of $\angle 1$ through $\angle 12$.

$m\angle 1 =$ ____ $m\angle 7 =$ ____

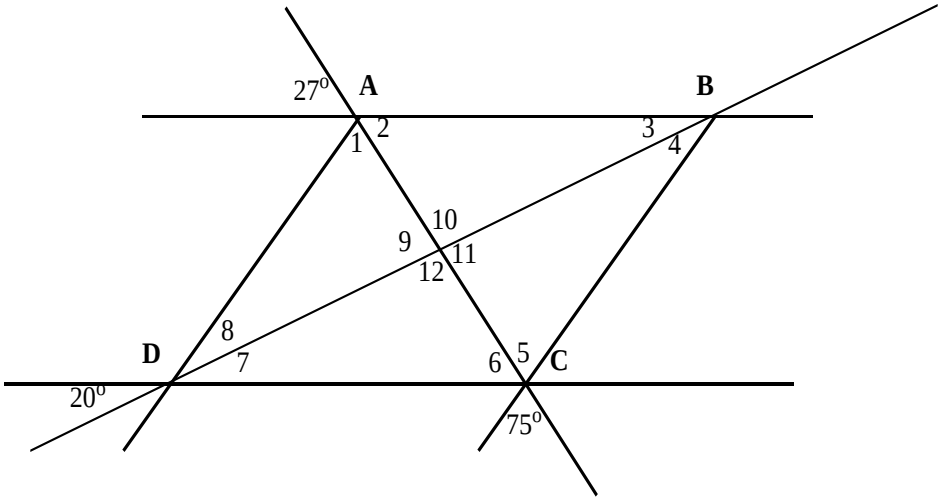
$m\angle 2 =$ ____ $m\angle 8 =$ ____

$m\angle 3 =$ ____ $m\angle 9 =$ ____

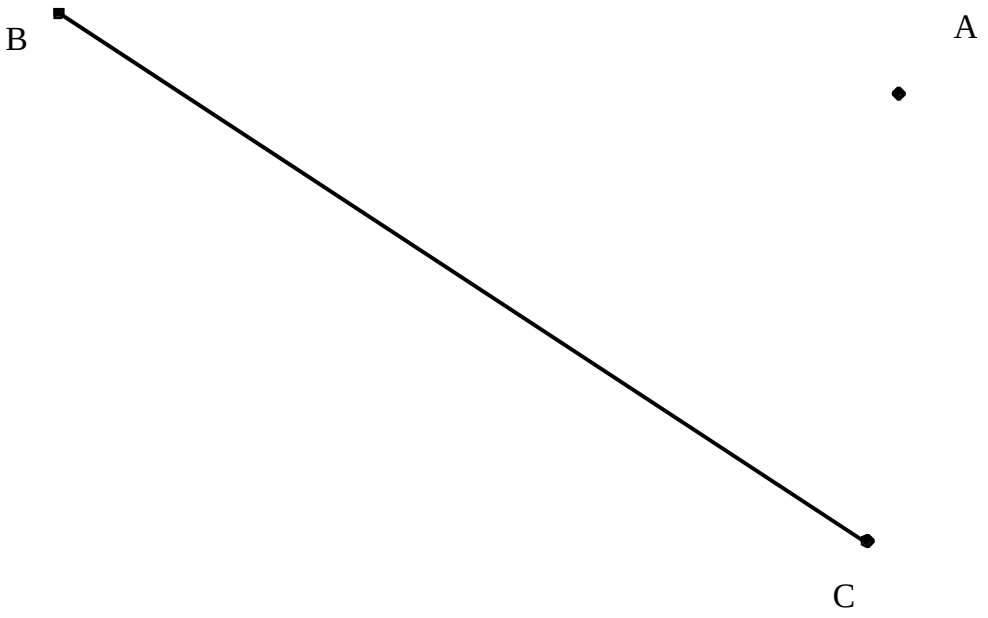
$m\angle 4 =$ ____ $m\angle 10 =$ ____

$m\angle 5 =$ ____ $m\angle 11 =$ ____

$m\angle 6 =$ ____ $m\angle 12 =$ ____



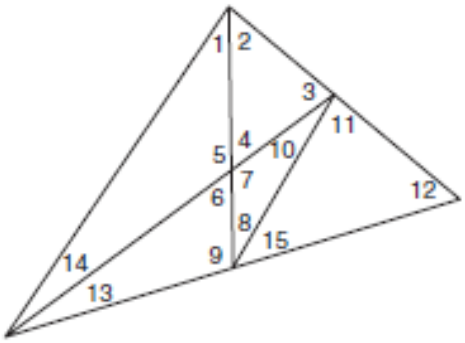
2. (6 pts) Draw a line parallel to $\overline{BC}$ passing through Point A using a compass. Show all arcs and intersections necessary to complete the task.



3. (9 pts) Construct a rhombus with diagonals *a* and *b*.

a *b*

4. (12 pts) Determine if each of the following is TRUE or FALSE. If TRUE, explain why.



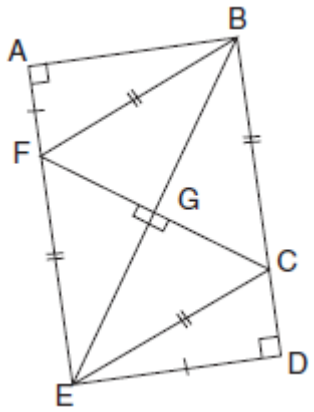
A. $\angle 4 + \angle 9 + \angle 13 = 180^\circ$

B. $\angle 5 = \angle 8 + \angle 10$

C. $\angle 4 = \angle 1 + \angle 14$

D. $\angle 2 + \angle 3 + \angle + \angle 11 + \angle 12 + \angle 15 = 360^\circ$.

5. (9 pts) In the following figure, $\angle GBC = 36^\circ$. Find the measures of the following angles:



A. $m\angle GFB =$ _____

B. $m\angle BCE =$ _____

C. $m\angle CED =$ _____

6. (2 pts each) Do the following lengths of sides form a right triangle? **If not, state the reason why.**

A. 6, 8, 10

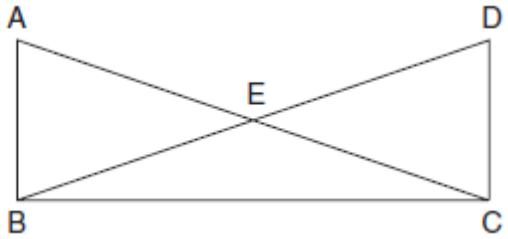
B. 9, 7, 17

C. x, $2x$, $3x$

7. (16 pts) Complete the following proof, stating the appropriate reasons justifying each statement. (NOTE: Fill in all the blanks in the *Statements* and *Reasons*. Not all the lines need to be used. Figure not drawn to scale.)

Given: $\overline{AB} \perp \overline{BC}$, $\overline{DC} \perp \overline{BC}$, and $\overline{AB} \cong \overline{CD}$

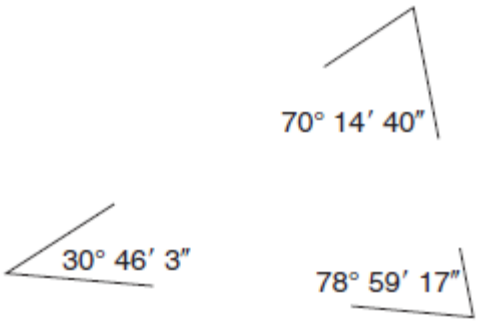
Prove: $\angle BAC \cong \angle CBD$



Statements	*Reasons*
1.	
2.	
3.	
4.	
5.	

BONUS *(total of **10 e**xtra points)*

A. (5 pts) A surveyor lays out a traverse with the three vertices as shown. Does the traverse "close" (Does it form a triangle)?



B. (5 pts) Find the are of the rhombus shown if $WY = 30\,\text{cm}$.