

3(18). Fill in the missing steps and reasons in the proof below.

Given: ABCD rectangle

Prove:  $\langle EDC \rangle \cong \langle ECD \rangle$ 

Statement

- 1. ABCD rectangle
- 2.  $\overline{AC} \cong \overline{BD}$
- 3. ABCD parallelogram
- 4.  $\overline{AC}$  and  $\overline{BD}$  bisect each other
- 5. AE = CE = BE = DE
- 6.  $\triangle EDC$  is isosceles
- 7.  $< EDC \cong < ECD$

Reason

1. G-1ven



- 2. Diag's of rest. are
- 3. Roctangles are percellelorans 4. Diag's of 11-gan bisect
- 5. Substitution and algebra
- Net n of isosules
- 7. Base angles Theorem

4(12). For each of the following diagrams, determine if there is enough given information to guarantee that the two triangles shown are congruent. If so, name the triangle congruence and state the appropriate congruence property (e.g.  $\triangle ABC \cong \triangle DEF$  by SSS). If not, state "not enough info."



5(12). For each part sketch a Venn diagram showing the relationship among the three sets of shapes. Label the sets in your diagram. Use the definition of trapezoid given in our text.



6(5). Identify and fix the error in the following proof. Given: ABCD is a rhombus Prove: ABCD is a parallelogram.

Reason

1. Given

2. Definition of rhombus

Statement

- 1. ABCD is a rhombus
- 2.  $\overline{AB} \cong \overline{BC} \cong \overline{CD} \cong \overline{AD}$

3. ABCD is a parallelogram

3. If a figure is a parallelogram then it has congruent opposite sides.

А

D

В

С

Cong opp sides -s parallelogram

7(6). Consider the following statement and diagram: The diagonals of an isosceles trapezoid are congruent.

What is the "Given" part of this statement (refer to the diagram	A
and/or its parts by name)?	
HITH AD RC	
What is the "To Prove" part of this statement (refer to the diagram	
and/or its parts by name)?	
AC C BD	

8(11). Circumscribe the triangle given below using construction techniques with compass and straightedge. Be sure to leave all compass marks visible so your process is clear.



Extra Credit (+5): Pictured below is a "sherd," a piece of pottery that one might dig up at an archaeological site where pottery-making people once lived. Archaeologists usually want to figure out how big the original piece of pottery was, as that can tell them something about who might have made the piece and when it was made.

Using compass and straightedge and the construction techniques that you know, devise a method for finding the radius of the original plate pictured below. Be sure to label your radius clearly once you find it.

