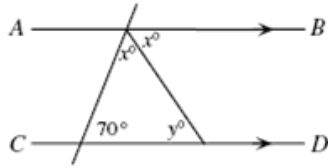Name _____   Date _____
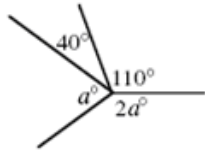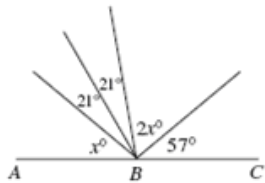
Math Challengers Assignment 13: Lines and Angles

1. In the diagram, *AB* is parallel to *CD.*   What is the value of y?
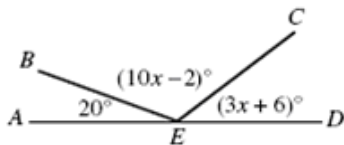

2. In the diagram, what is the value of a?

3. In the diagram, ABC is a straight line. What is value of x?

4. If AD is a straight line segment and E is a point on AD, determine the measure of $\angle CED$

5. Two angles are supplementary. The measure of one is twice the measure of the other. What is the number of degrees in the measure of the greater angle?

6. Two angles are complementary. The difference in their degree measures is 40. Find the number of degrees in the larger angle.

7. The measures of two complementary angles are in ratio 5:4. What is the number of degrees in the measure of the greater of two angles?

8. One of two supplementary angles is four times twice the other. How many degrees are in the measure of the smaller angle?

9. The sum of the measures of two of the angles formed by a pair of intersecting lines is 84. What is the measure in degrees of either of the other angles formed?

10. The measures of the angles of a triangle are in the ratio 5:6:7. What is the number of degrees in the measure of the largest angle of the triangle?

11. Two angles are supplementary. If the measure of one angle is 30 more than twice the other, what is the number of degrees in the measure of the greater angle?

12. The ratio of the measures of the interior angles of a triangle is 3:10:14. What is the measure in degrees of the largest exterior angle of the triangle?

13. Angles A and B are complementary. Angles A and C are supplementary. How many degrees are in angle B if angle C measures $106°$?

14. The measures of a pair of supplementary angles are represented by 2a + 10 and 3a − 40. Find the number of degrees in the measure of the smaller of the two angles.

15. What is the degree measure of the acute angle formed by the hands of a clock at 3:20?

16. What is the ratio of the measure of the supplement of a $30°$ angle to the measure of the complement of a $30°$ angle? Express your answer as a common fraction.

17. How many degrees are there in each of the exterior angles of a regular polygon in 12 sides?

18. How many degrees are in the vertex angle of an isosceles triangle when the vertex angle is 16 degrees more than twice one of the base angles?

19. When the measure of $\angle A$ is added to the measure of the complement of $\angle B$, their sum is 120°. $\angle A$ measures 86°. How many degrees are in the measure of $\angle B$?

20. Two interior angles, A and B, of pentagon $ABCDE$ are 60° and 85°. Two of the remaining angles, C and D, are equal and the fifth angle, E, is 15° more than twice C. Find the measure of the largest angle.

21. What is the number of degrees in the acute angle formed by the hands of a clock at 6:44?

22. In parallelogram $ABCD$, the measure of angle ABC is 3 times the measure of angle BCD. How many degrees are in the measure of angle ADC?