

**Math 096 - Test 2**  
March 22, 2017

Name \_\_\_\_\_

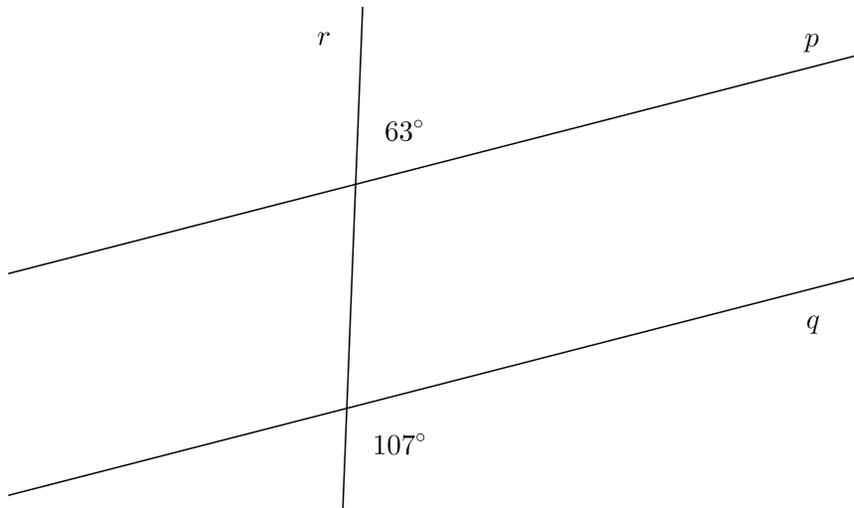
Score \_\_\_\_\_

Show all work. Supply explanations when necessary. Partial credit will be awarded for correct work.

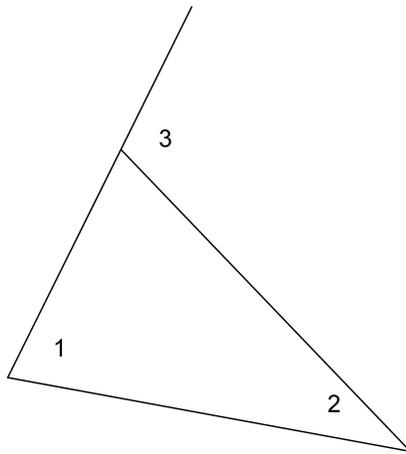
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1. (2 points) How many congruent sides does a scalene triangle have? \_\_\_\_\_
2. (2 points) What is the name of a polygon with 7 sides? \_\_\_\_\_
3. (5 points) Find the measure of each interior angle of a regular nonagon.

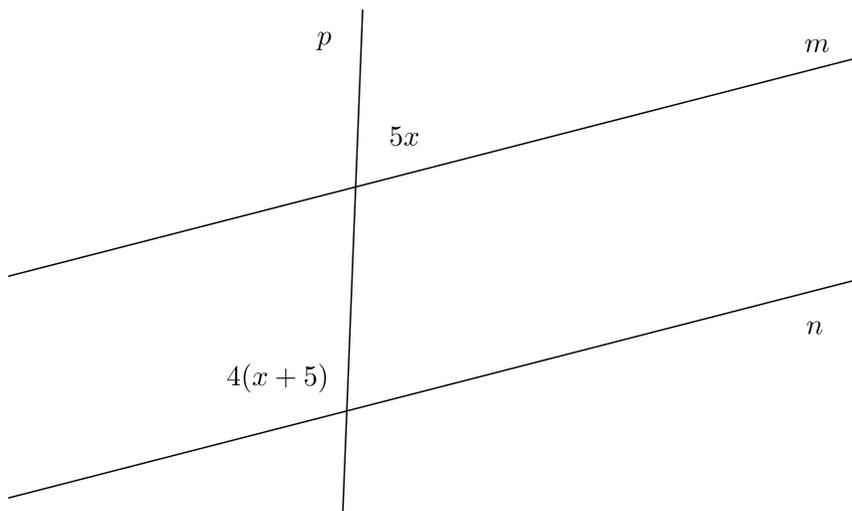
4. (4 points) Determine whether the lines  $p$  and  $q$  are parallel. Explain how you know.



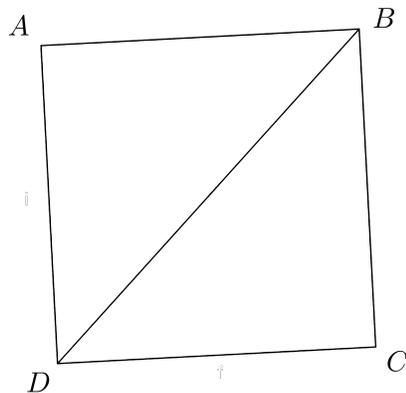
5. (6 points) Give a brief but convincing argument that  $m(\angle 1) + m(\angle 2) = m(\angle 3)$ .



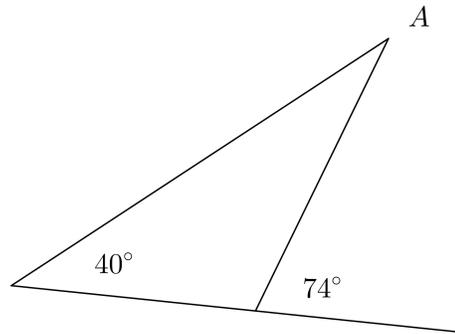
6. (6 points) Find the value of  $x$  so that the lines  $m$  and  $n$  are parallel.



7. (3 points) In  $\triangle ABC$ ,  $AB = 5$  cm,  $BC = 5$  cm, and  $m(\angle B) = 90^\circ$ . Completely describe the type of triangle represented by  $\triangle ABC$ . (In other words, give the complete name for the triangle.)
8. (2 points) Sketch a concave quadrilateral. (Use a straight-edge.)
9. (3 points) Find the number of sides of a polygon whose interior angles have measures that add up to  $4140^\circ$ .
10. (8 points) The figure  $ABCD$  shown below is a regular quadrilateral (i.e., a square) with one of its diagonals drawn. Find two congruent triangles, give a correct congruence statement, and explain how you know your triangles are congruent.



11. (4 points) Find the measure of the interior angle at  $A$ . Show work or explain.



12. (2 points) What does CPCTC stand for? (Circle a single answer.)
- (a) Corresponding parts of corresponding triangles are corresponding.
  - (b) Congruent parts of corresponding triangles are corresponding.
  - (c) Corresponding parts of congruent triangles are congruent.
  - (d) Congruent parts of corresponding triangles are correct.
  - (e) Can police cars topple cones.
13. (2 points) What is the sum of the measures of the exterior angles a convex polygon with 117 sides?

14. (6 points) Use a straight-edge to sketch a convex pentagon. Then shown and label the exterior angles.

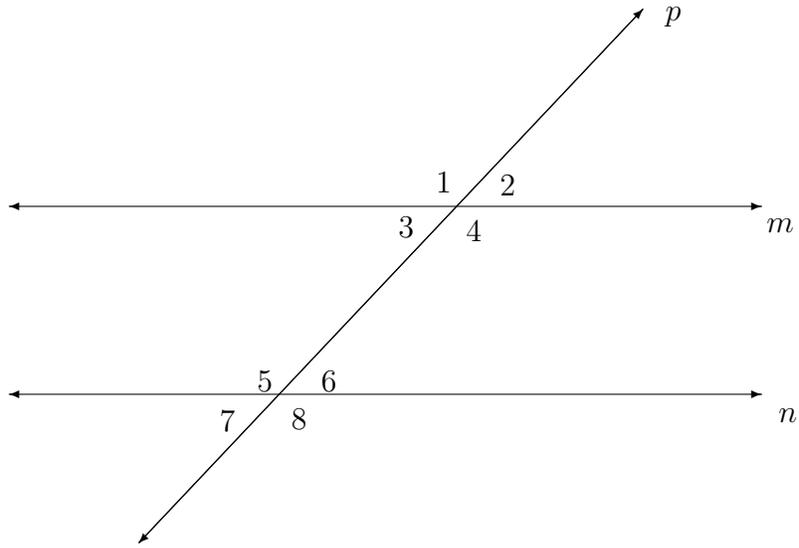
15. (3 points) Sketch a figure that is not a polygon and explain why exactly it is not.

16. (2 points) In the SSS triangle congruence property, what does SSS stand for?

17. (5 points) Two lines are cut by a transversal. Which of these would prove that the lines are parallel. Circle all that apply.

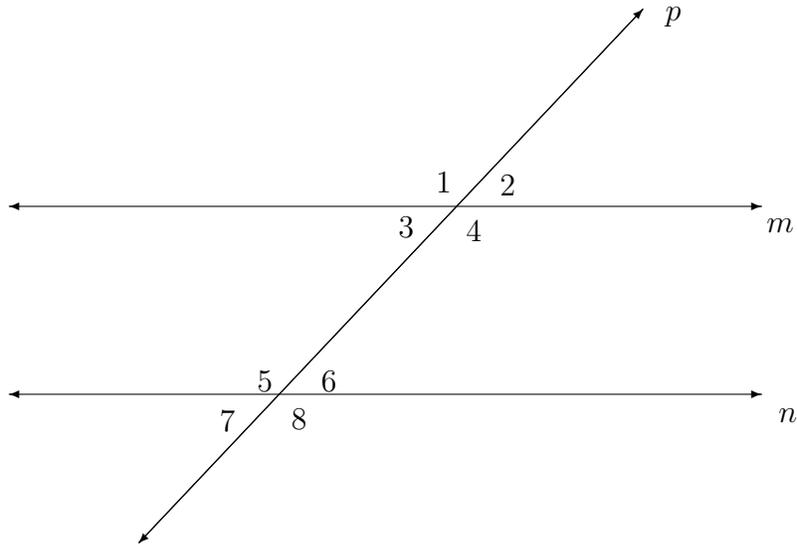
- (a) A pair of vertical angles are congruent.
- (b) A pair of corresponding angles are congruent.
- (c) A pair of adjacent angles are congruent.
- (d) A pair of alternate interior angles are congruent.
- (e) A pair of alternate exterior angles are congruent.

18. (12 points) In the following figure, the parallel lines  $m$  and  $n$  are being cut by transversal  $p$ .



- (a) Name a pair of alternate exterior angles.
- (b) Name a pair of corresponding angles.
- (c) Name a pair of alternate interior angles.
- (d) Name a pair of vertical angles.
- (e) Name a pair of adjacent angles.
- (f) Name a pair of supplementary angles that are not adjacent.

19. (8 points) In the following figure, the parallel lines  $m$  and  $n$  are being cut by transversal  $p$ .



(a) Find  $m(\angle 7)$  if  $m(\angle 1) = 108^\circ$ .

(b) Find  $m(\angle 5)$  if  $m(\angle 4) = 110.8^\circ$ .

(c) Find  $m(\angle 5)$  if  $m(\angle 3) = 71^\circ$ .

(d) Find  $m(\angle 6)$  if  $m(\angle 7) = 68^\circ$ .

20. (2 points) What is the difference between an equilateral triangle and an equiangular triangle?

21. (8 points) Suppose  $\triangle ABC \cong \triangle LGS$ . If  $\angle G$  is a right angle and  $m(\angle A) = 30^\circ$ , find each of the following.

(a)  $m(\angle B)$

(b)  $m(\angle C)$

(c)  $m(\angle L)$

(d)  $m(\angle S)$

22. (5 points) Find the measure of  $\angle A$ . Briefly explain your reasoning.

