

Math 096 - Test 1

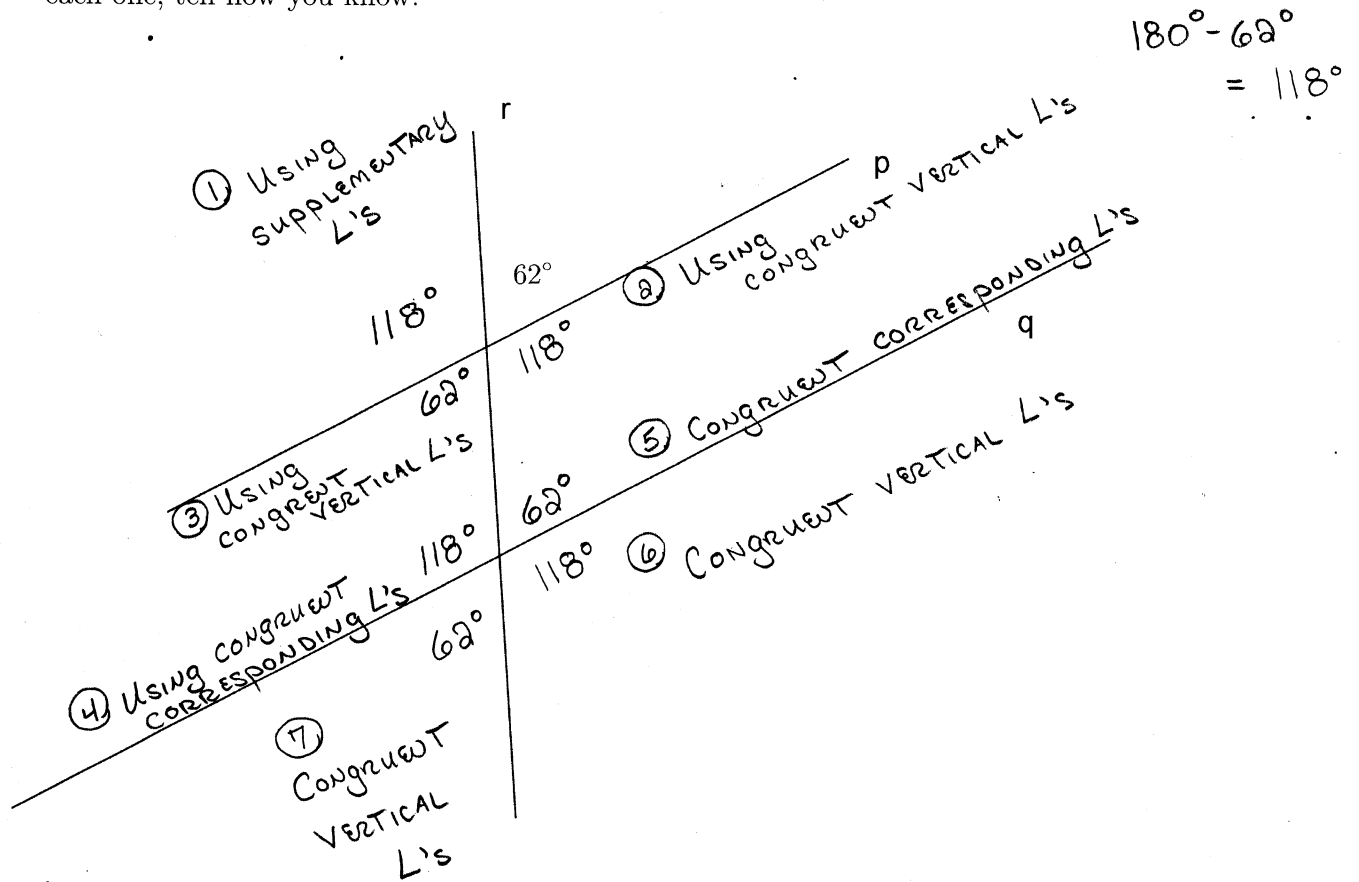
February 22, 2017

Name key

Score _____

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

1. (14 points) The parallel lines p and q are cut by transversal r . The measure of one of the angles is shown below. Find the measures of the seven (7) other angles and, for each one, tell how you know.



2. (4 points) Determine whether each sentence is a statement or not.

(a) Today is Monday.

STATEMENT

(b) Hello there.

NOT

(c) An angle has two sides.

STATEMENT

(d) $3 < 4$

STATEMENT

3. (4 points) Write the negation of each statement in a correct sentence.

(a) Steve likes to drink iced tea.

STEVE DOES NOT LIKE TO DRINK ICED TEA.

(b) No one in the class was bored by the professor's lecture.

SOME ONE WAS BORED BY THE LECTURE.

4. (3 points) Identify each as a conjunction, disjunction, or conditional.

(a) Sara and Brian went hiking in the mountains.

CONJUNCTION

(b) When your battery dies, you should charge your phone.

CONDITIONAL

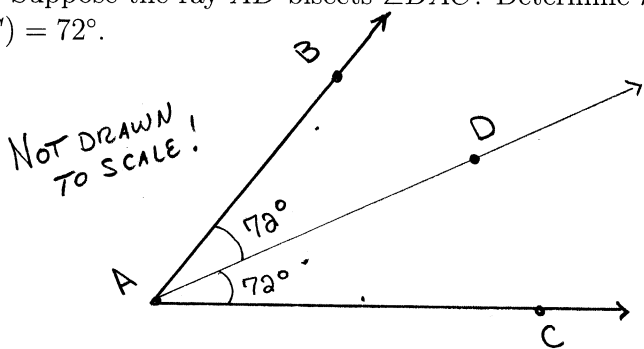
(c) Either he makes the shot, or he loses the game.

DISJUNCTION

5. (1 point) You walk into your classroom, look at your professor, and conclude that you will do well on your test. What kind of reasoning is this: induction, deduction, or intuition?

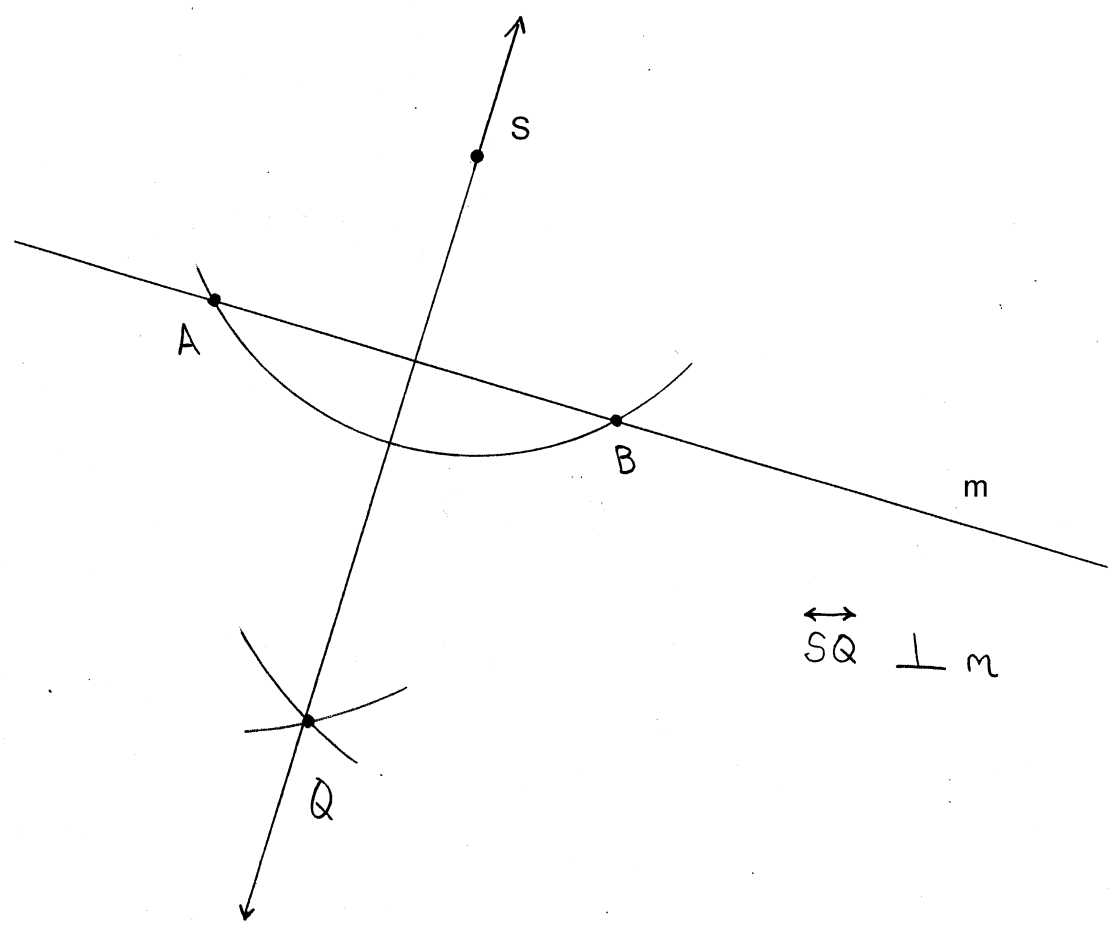
INTUITION

6. (5 points) Suppose the ray \overrightarrow{AD} bisects $\angle BAC$. Determine $m(\angle BAC)$ if $m(\angle DAC) = 72^\circ$.



$$72^\circ + 72^\circ = 144^\circ$$

7. (8 points) Use your compass and straightedge to construct a line through S perpendicular to line m . You will be graded on the steps of your construction as well as the final result.



8. (2 points) Which one of the following is an example of deductive reasoning?
- (a) Every elephant I have ever seen is gray. Therefore every elephant must be gray.
 - (b) It has rained every day. Therefore it will rain tomorrow.
 - (c) Since the product of two negative numbers is positive, $-37 \times (-15)$ must be positive.
 - (d) A sequence begins with 1,2,3,4. The next term must be 5.

9. (2 points) Which one of the following is an example of inductive reasoning?

- (a) $2(3 + 5) = 2(5 + 3)$
- (b) A sequence begins with 2,4,6,8. The next term must be 10.
- (c) If $x = 10$, then $2x + 3 = 23$.
- (d) Wednesdays are pizza days, so today is a pizza day.

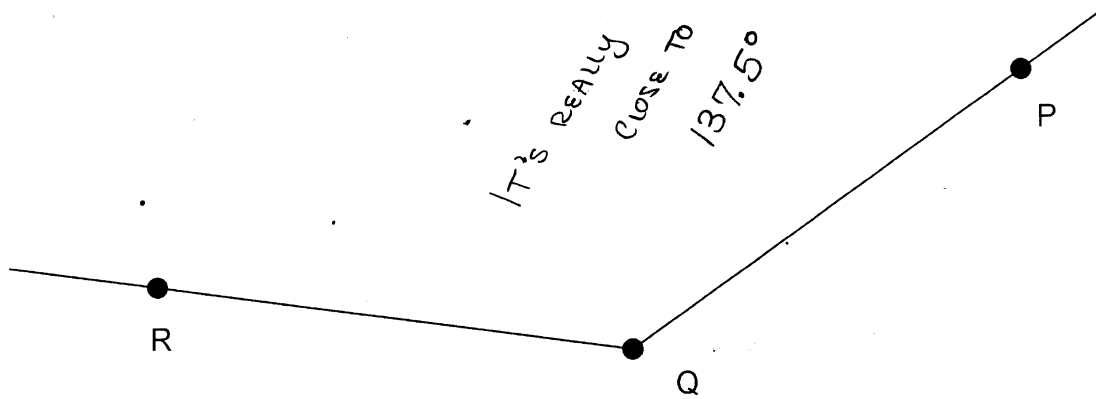
10. (10 points) Fill in a correct word.

- (a) A SEGMENT is a subset of a line consisting of two endpoints and all points in between.
- (b) A angle whose measure is between 180° and 360° is called a REFLEX angle.
- (c) An angle is formed when two rays share a common endpoint. That common endpoint is called the VERTEX.
- (d) Two angles that together make a right angle are called COMPLEMENTARY angles.
- (e) An infinite set of points that forms a flat, two-dimensional surface is called a PLANE.

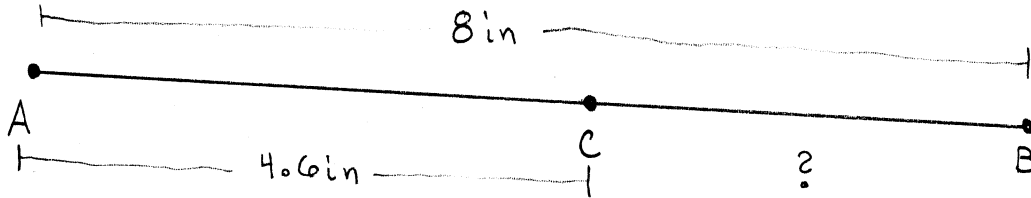
11. (5 points) Determine whether each statement is true or false.

- (a) T \overleftrightarrow{AB} is the same line as \overleftrightarrow{BA} .
- (b) F \overrightarrow{AB} is the same ray as \overrightarrow{BA} .
- (c) F Adjacent angles are congruent.
- (d) T Three noncollinear points determine a unique plane.
- (e) F Postulates must be proven by using deduction.

12. (4 points) Use your protractor to find the measure of $\angle PQR$.

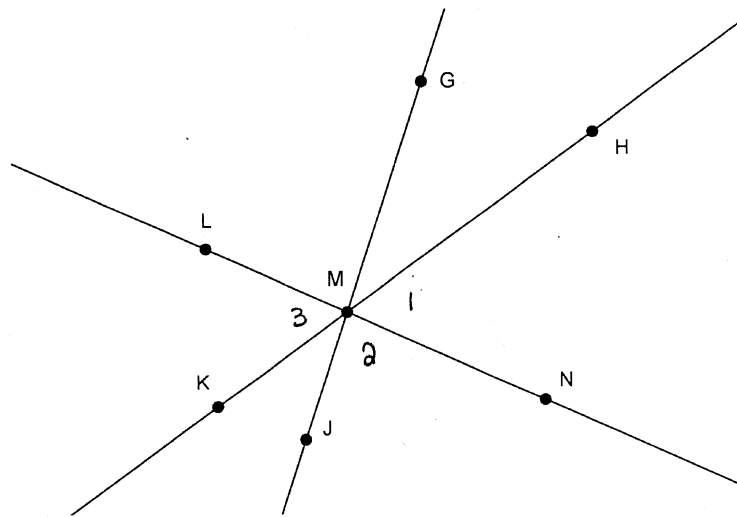


13. (5 points) Line segment \overline{AB} measures 8 in. Point C lies on the segment between A and B , and $m(\overline{AC}) = 4.6$ in. Sketch a picture that shows this situation. Then determine $m(\overline{CB})$.



$$\begin{aligned}
 m(\overline{CB}) &= 8 - 4.6 \\
 &= 3.4 \text{ in}
 \end{aligned}$$

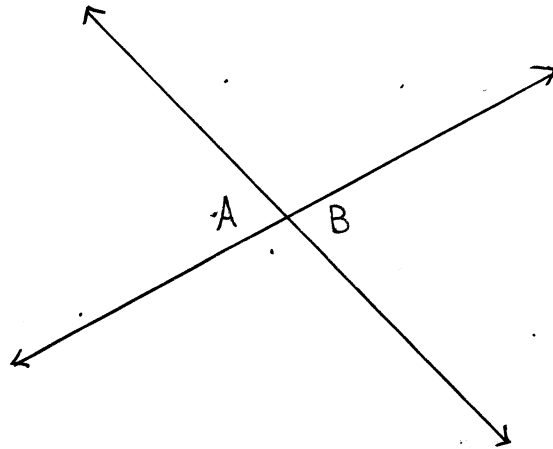
14. (6 points) Refer to the figure below. Name a pair of adjacent angles, and name a pair of angles that are not adjacent. Tell which pair is which.



$\angle 1$ $\angle 2$
 $\angle HMN$ AND $\angle NMJ$
 ARE ADJACENT.

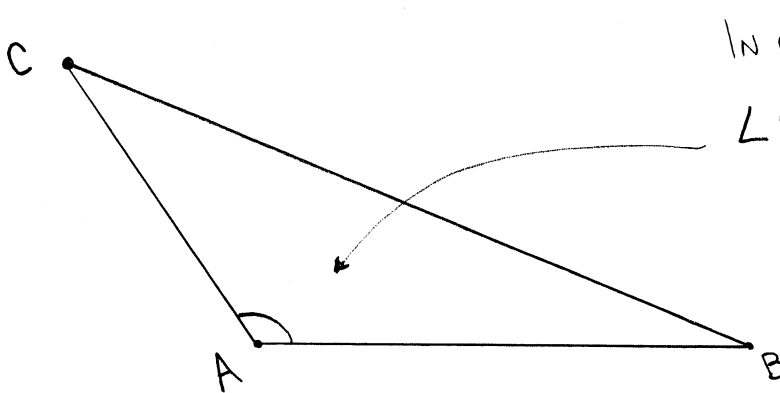
$\angle 1$ $\angle 3$
 $\angle HMN$ AND $\angle LMK$
 ARE NOT
 ADJACENT.

15. (4 points) Use a straightedge to sketch two intersecting lines. Then point out a pair of vertical angles.



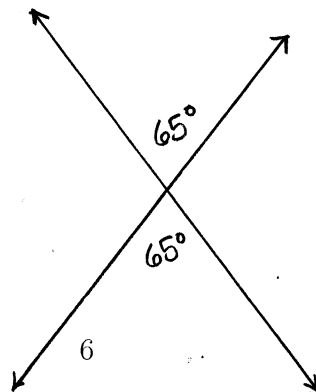
$\angle A$ & $\angle B$
ARE VERTICAL \angle 'S

16. (6 points) Use a straightedge to draw a triangle and label its vertices A , B , and C . Then identify $\angle CAB$ and tell whether your angle is acute, obtuse, or right.



IN MY TRIANGLE,
 $\angle CAB$ IS OBTUSE.

17. (3 points) One angle in a pair of vertical angles has measure 65° . What is the measure of the other angle in the pair?



BECAUSE VERTICAL
ANGLES ARE
CONGRUENT,
THE OTHER
MEASURES 65°
AS WELL.

18. (5 points) Two angles are supplementary. One of the angles has degree measure x and the other has degree measure $2x + 30^\circ$. Find x .

$$x + (2x + 30^\circ) = 180^\circ$$

$$3x + 30^\circ = 180^\circ$$

$$3x = 150^\circ$$

$$x = 50^\circ$$

19. (4 points) What is a transversal?

A TRANSVERSAL IS A LINE THAT
INTERSECTS TWO OR MORE COPLANAR LINES.

20. (5 points) In the figure below, point C lies on \overleftrightarrow{AB} . Which of the following words describe the relationship between $\angle 1$ and $\angle 2$. Circle all that apply.

vertical

complementary

adjacent

congruent

supplementary

