

Review Test 1

Chapters 1 & 2 and Appendix B

To prepare for the test, learn all definitions, be familiar with all theorems and postulates and study the following problems. Know how to translate a statement, problem or theorem into hypothesis (what's given), conclusion (what needs to be proved) and an appropriate drawing to illustrate the given situation.

Logic (Appendix B & 1.1)

Handout Introduction Exercises # 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19
Symbolic forms and proofs of DeMorgan's Laws, Law of Detachment, Law of Negative Inference, Law of Syllogism.

Homework #1 Appendix B1: Exercises # 16, 17, 18
Appendix B2: All exercises listed
Section 1.1: Exercises # 4, 13, 14, 17, 18

Chapter 1

Important terms and concepts:

- | | | |
|------------------------------|--|-----------------------|
| - Point | - angle | - reflexive relation |
| - Line | - bisector of an angle | - symmetric relation |
| - Ray | - types of angles | - transitive relation |
| - Opposite rays | - congruent angles | - Postulates # 1 – 7 |
| - line segment | - complementary angles | |
| - midpoint | - supplementary angles | |
| - bisector of a line segment | - vertical angles | |
| - betweenness of points | - perpendicular bisector of a line segment | |
| - collinear points | - length of a segment | |
| - coplanar lines | - congruent segments | |

Homework #2 Section 1.2: Exercises # 45
Section 1.3: Exercises # 10, 14, 24, 26 (including proof)
Section 1.4: Exercises # 17, 19, 20, 22

Handout Sections 1.3 & 1.4 Exercises # 1, 2, 4 (write all steps down), 6, 9, 11 (write all steps down), 11, 12

Homework #3 Section 1.5: Exercises # 23, 26
Section 1.6: Exercises # 1, 13 – 16 (know how to write the properties mathematically)
Section 1.7: Exercises # 1 – 6, 9, 11, 12, 14, 15

Know the formal proof of the following theorems:

- 1) If two lines are perpendicular, then they meet to form right angles. (T 1.7.1) – in class
- 2) If two lines meet to form a right angle, then these lines are perpendicular. (T 1.7.2) - textbook
- 3) If two lines intersect, then the vertical angles formed are congruent. (T 1.7.5) – in class.

Chapter 2

Important terms and concepts:

- | | | |
|-----------------------|--|--------------------------------|
| - parallel lines | - interior and exterior angles | - triangle |
| - perpendicular lines | - corresponding angles | - types of triangles |
| - parallel planes | - alternate interior and exterior angles | - exterior angle of a triangle |
| - transversal | | |

<u>Homework #4</u>	Section 2.1:	Exercises # 1, 2, 9, 12 – 14, 17, 19
	Section 2.2:	Exercises # 1 – 8, 13, 16, 21
	Section 2.3:	Exercises # 17 – 19, 21, 23
	Section 2.4:	Exercises # 11, 15, 17, 20, 23, 26 – 28, 30, 31

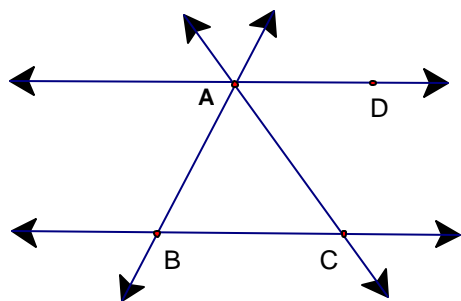
Handout Sections 2.2 & 2.3 Exercises # 1, 2, 4, 5, 6

Know the proofs (informal OK) of the following theorems:

- 1) If two lines are each parallel to a third line, then these lines are parallel to each other. (T 2.3.6) – in class
- 2) If two coplanar lines are perpendicular to a third line, then these lines are parallel to each other. (T 2.3.7) – in class
- 3) In a triangle, the sum of the measures of the interior angles is 180. (T 2.4.1) – in class + textbook.
- 4) The measure of an exterior angle of a triangle equals the sum of the two nonadjacent interior angles. (T 2.4.5) – in class + textbook

Do you know the definitions and theorems we have studied in Chapters 1 and 2?
Have you understood the definitions and theorems rather than memorizing them?

1)



Use the figure to name the geometric figures requested:

- a) four lines
- b) four line segments
- c) eight rays
- d) two segments whose intersection is empty.

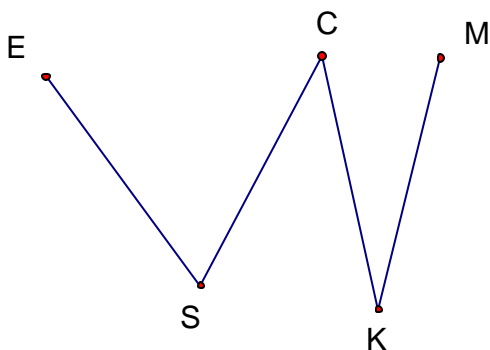
2) Draw a figure satisfying all the given facts:

- a) \overline{AB} , \overline{AC} , and \overline{CD} such that $\overline{AB} \cap \overline{AC} = \{A\}$, and $\overline{CD} \cap \overline{AB}$ such that $A - B - D$.
- b) \overline{EJ} , \overline{JS} , \overline{ES} , and \overline{KC} such that $\overline{EJ} \cap \overline{KC} = \emptyset$, $\overline{JS} \cap \overline{KC} = \emptyset$, and $\overline{ES} \cap \overline{KC} \neq \emptyset$.

3) Answer true or false:

- a) EJ represents the length of \overline{EJ} .
- b) If $EJ = JS$, then $\overline{EJ} \cong \overline{JS}$.
- c) If $\overline{AB} \cong \overline{CD}$, then $AB = CD$.
- d) If $EJ > JS$, then $\overline{EJ} \cong \overline{JS}$.
- e) If $\overline{TJ} \cong \overline{KR}$, then TJ could be less than KR .
- f) Given any \overline{AB} and any \overline{LM} , there exists a unique point P on \overline{LM} such that $\overline{LP} \cong \overline{AB}$.

4)



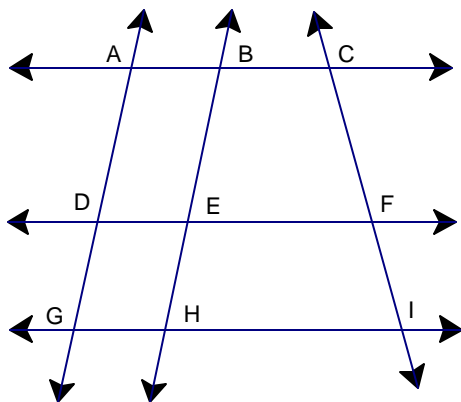
Given $\overline{ES} \cong \overline{CK}$
 $\overline{CK} \cong \overline{KM}$
 $\overline{KM} \cong \overline{CS}$

Prove $\overline{ES} \cong \overline{CS}$

5) Rearrange the following statements into a proper order leading from the hypothesis to the conclusions:

- a) $ES = CK$ b) $KM = CS$ c) $ES = CS$ d) $\overline{CK} \cong \overline{KM}$
- e) $\overline{ES} \cong \overline{CK}$ f) $CK = KM$ g) $\overline{ES} \cong \overline{CS}$ h) $\overline{KM} \cong \overline{CS}$

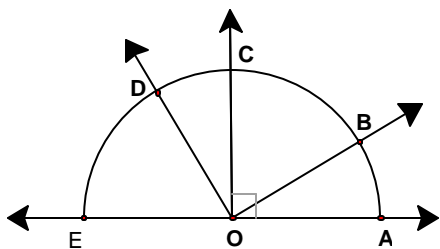
6)



Given $A-D-G$ (formal proof)
 $B-E-H$
 $C-F-I$
 $\overline{DG} \cong \overline{EH}$
 $\overline{BE} \cong \overline{CF}$
 $\overline{EH} \cong \overline{FI}$
 $\overline{AD} \cong \overline{BE}$

Prove $\overline{AG} \cong \overline{CI}$

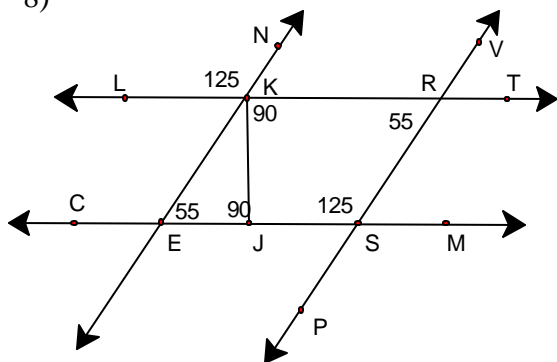
7)



Given the figure, name:

- a) three acute angles
- b) Two right angles
- c) One obtuse angle
- d) One straight angle
- e) Two complementary angles
- f) Two supplementary angles
- g) Two adjacent angles
- h) Two nonadjacent angles
- i) Two opposite rays
- j) Three noncollinear points.

8)

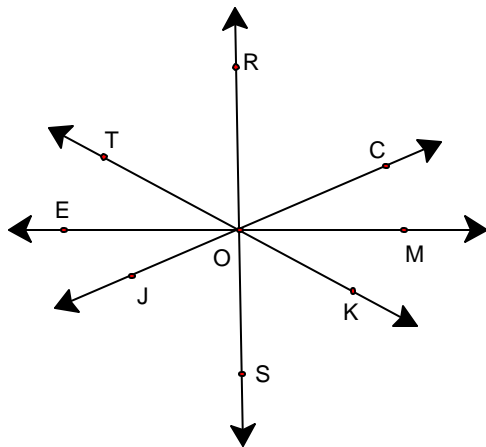


Given the figure as marked, answer

True or False:

- $\angle EJK$ is a right angle.
- $\angle LKN$ and $\angle PSM$ are vertical angles.
- $\angle LKN$ is supplementary to $\angle NKR$.
- $\angle JSR$ is complementary to $\angle RSM$.
- $\angle LKE \cong \angle KRS$
- $\angle EKJ$ is complementary to $\angle KEJ$
- $\angle EKJ$ is adjacent to $\angle JKR$.

9)



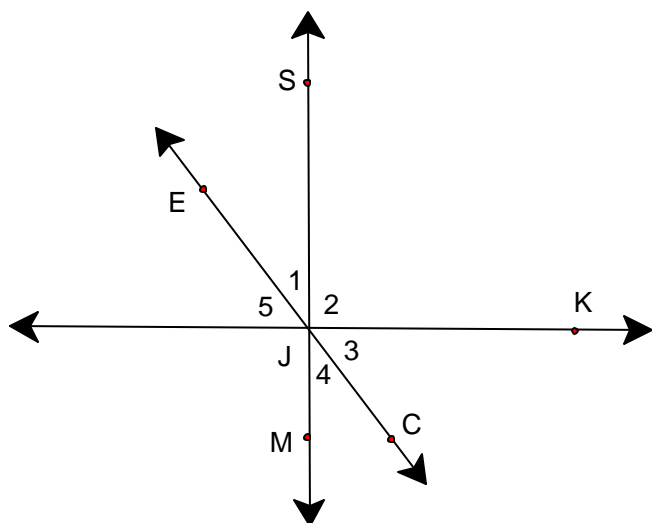
Use the figure to answer true or false.

Given $\overline{RS} \perp \overline{EM}$

$$m\angle TOE = m\angle JOE = 30^\circ$$

- $\angle MOS$ is a right angle
- $\angle JOE \cong \angle MOC$
- $\angle EOR = \angle EOT + \angle TOR$
- $\angle ROC$ and $\angle KOS$ are vertical angles.

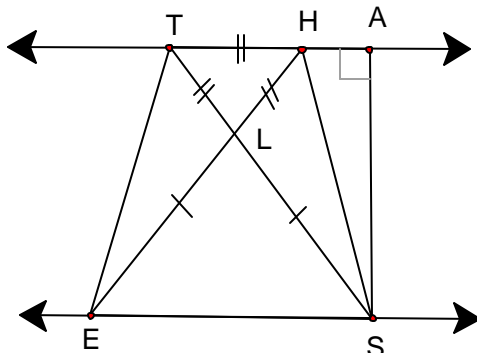
10)

Given $\overline{JK} \perp \overline{SM}$

$$m\angle EJK = 118^\circ$$

Find angles 1 through 5
(justify your steps)

11)



Use the figure to answer

- Name four acute triangles
- Name four obtuse triangles.
- Name one right triangle.
- Name one isosceles triangles.
- Name one equilateral triangle.