

In preparation for the coming test, you should take a good look at chapter summary.

1

CHAPTER SUMMARY

CONCEPTS AND PROCEDURES

After studying this chapter, you should be able to

- Recognize points, lines, segments, rays, angles, and triangles (1.1)
- Measure segments and angles (1.2)
- Classify angles and name the parts of a degree (1.2)
- Recognize congruent angles and segments (1.2)
- Recognize collinear and noncollinear points (1.3)
- Recognize when a point is between two other points (1.3)
- Apply the triangle-inequality principle (1.3)
- Correctly interpret geometric diagrams (1.3)
- Write simple two-column proofs (1.4)
- Identify bisectors and trisectors of segments and angles (1.5)
- Write paragraph proofs (1.6)
- Recognize that geometry is based on a deductive structure (1.7)
- Identify undefined terms, postulates, and definitions (1.7)
- Understand the characteristics and application of theorems (1.7)
- Recognize conditional statements and the negation, the converse, the inverse, and the contrapositive of a statement (1.8)
- Use the chain rule to draw conclusions (1.8)
- Solve probability problems (1.9)

Think of the *Concepts and Procedures*

section as a checklist. How successfully do you believe you can meet each objective?

Choose a few of the ones you feel weakest in to focus on. Redo some of those homework exercises. (Blank copies of the packets are online.)

VOCABULARY

- | | | |
|-----------------------------|-----------------------|---------------------------|
| acute angle (1.2) | implication (1.7) | protractor (1.2) |
| angle (1.1) | intersection (1.1) | ray (1.1) |
| bisect, bisector (1.5) | inverse (1.8) | right angle (1.2) |
| chain rule (1.8) | line (1.1) | second (1.2) |
| collinear (1.3) | line segment (1.1) | segment (1.1) |
| conclusion (1.7) | measure (1.2) | straight angle (1.2) |
| conditional statement (1.7) | midpoint (1.5) | theorem (1.4) |
| congruent angles (1.2) | minute (1.2) | tick mark (1.2) |
| congruent segments (1.2) | negation (1.8) | triangle (1.1) |
| contrapositive (1.8) | noncollinear (1.3) | trisect, trisectors (1.5) |
| converse (1.7) | number line (1.1) | trisection points (1.5) |
| counterexample (1.6) | obtuse angle (1.2) | two-column proof (1.4) |
| deductive structure (1.7) | paragraph proof (1.6) | union (1.1) |
| definition (1.7) | point (1.1) | Venn diagram (1.8) |
| endpoint (1.1) | postulate (1.7) | vertex (1.1) |
| hypothesis (1.7) | probability (1.9) | |

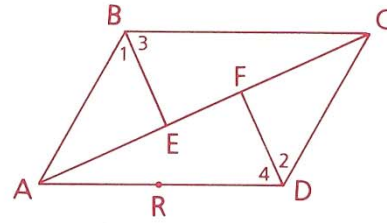
Review the *Vocabulary*.

Do you know the definitions of these words? Look them up to be sure.

You may wish to construct a “foldable” of vocabulary. On the front flap you should see the term and the location in the text. On the inside left you include an example, and on the inside right include the definition. (This study method is similar to flashcards, but easier to carry and contain.)

Problem Set A

- 1 a Name in all possible ways, the line containing A, R, and D.
 b Name the sides of $\angle ABC$.
 c What side do $\angle 2$ and $\angle 4$ have in common?
 d Name the horizontal ray with endpoint C.
 e Estimate the sizes of $\angle BAD$, $\angle 2$, and $\angle ABC$.
 f Are angles FCD and DCE different angles?
 g Which angle in the figure is $\angle B$?



- h $\overrightarrow{EC} \cup \overrightarrow{FA} = \underline{\quad? \quad}$
 i $\overrightarrow{EC} \cap \overrightarrow{FA} = \underline{\quad? \quad}$
 j $\overrightarrow{BA} \cup \overrightarrow{BE} = \underline{\quad? \quad}$
 k $\overleftrightarrow{AC} \cap \overleftrightarrow{DR} = \underline{\quad? \quad}$
 l $\angle AFD \cap \overline{CE} = \underline{\quad? \quad}$

3 a $43^{\circ}15'17'' + 25^{\circ}49'18'' = \underline{\quad? \quad}$

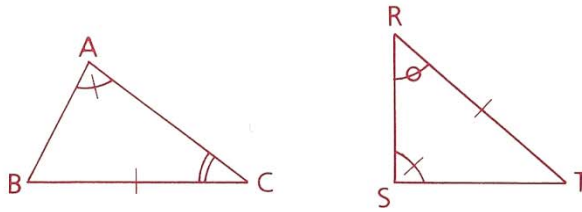
b $90^{\circ} - 39^{\circ}17'' = \underline{\quad? \quad}$

- 4 a Change $46\frac{7}{8}^{\circ}$ to degrees, minutes, and seconds.

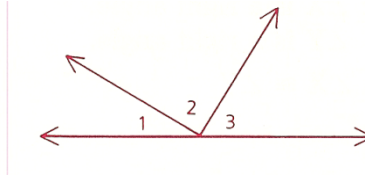
- b Change $132^{\circ}6'$ to degrees.

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- 5 a According to the diagram, which two segments are congruent?
 b According to the diagram, which two angles are congruent?

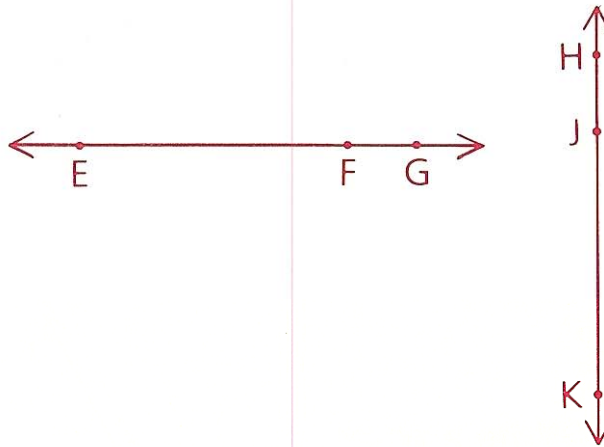


- 8 The measures of $\angle 1$, $\angle 2$, and $\angle 3$ are in the ratio 1:3:2. Find the measure of each angle.



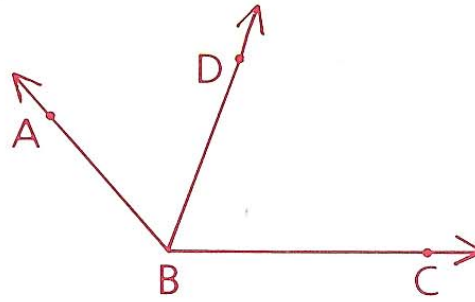
In problems 10 and 11, copy each figure and incomplete proof. Then complete the proof by filling in the missing reasons.

- 10 Given: Diagram as shown
 Prove: $\angle EFG \cong \angle HJK$



Statements	Reasons
1 Diagram as shown	1 _____
2 $\angle EFG$ is a straight angle	2 _____
3 HJK is a straight angle	3 _____
4 $\angle EFG \cong \angle HJK$	4 _____

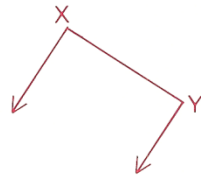
- 11 Given: $\angle ABC = 130^\circ$,
 $\angle ABD = 60^\circ$
 Prove: $\angle DBC$ is acute.



Statements	Reasons
1 $\angle ABC = 130^\circ$	1 _____
2 $\angle ABD = 60^\circ$	2 _____
3 $\angle DBC = 70^\circ$	3 _____
4 $\angle DBC$ is acute	4 _____

In problems 12–15, write each proof in two-column form.

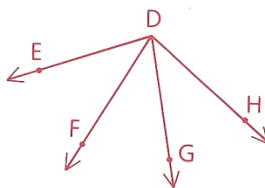
- 12 Given: $\angle X$ is a right angle.
 $\angle Y$ is a right angle.
 Prove: $\angle X \cong \angle Y$



- 13 Given: $\overline{AB} \cong \overline{BC}$
 Prove: B is the midpoint of \overline{AC} .

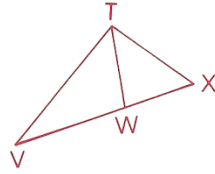


- 14 Given: \overrightarrow{DF} and \overrightarrow{DG} trisect $\angle EDH$.
 Conclusion: $\angle EDF \cong \angle FDG \cong \angle GDH$



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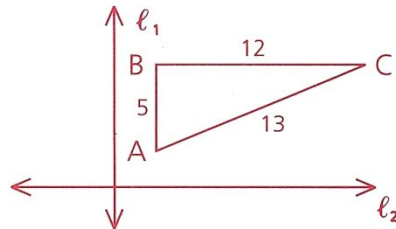
- 15 Given: \overrightarrow{TW} bisects $\angle VTX$.
Prove: $\angle VTW \cong \angle XTW$



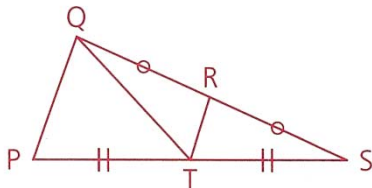
- 17 a Find coordinate of C (the midpoint of \overline{BD}).
b If $AD = 15$, find the coordinate of A.



- 18 Copy the diagram and draw $\triangle A'B'C'$, the reflection of $\triangle ABC$, over ℓ_2 . What is the length of $A'B'$?

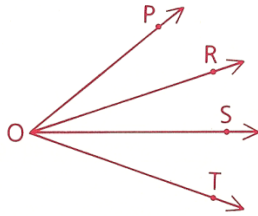


- 19 a If one of the five labeled points is selected at random, what is the probability that it is a midpoint?



- b If two of the five points are randomly chosen, what is the probability that both are midpoints?

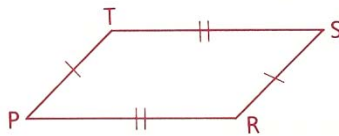
- 20 Given: \overrightarrow{OR} and \overrightarrow{OS} trisect $\angle TOP$.
 $\angle TOP = 40.2^\circ$
Find: $m\angle POR$



- 22 Write the converse, the inverse, and the contrapositive of the statement "If the time is 2:00, then the angle formed by the hands of a clock is acute." Are these statements true or false?

Problem Set B

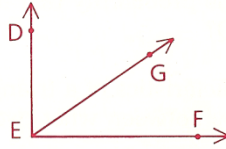
- 23 The perimeter of PRST is 10 more than $5(RS)$. If $PR = 26$, find RS .



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- 24** Given: $\angle DEG = (x + 3y)^\circ$,
 $\angle GEF = (2x + y)^\circ$;
 $\angle DEF$ is a right angle.

- a** Solve for y in terms of x .
b If $\angle DEG \cong \angle GEF$, find the values of x
and y .



- 25** Given: $WY = 25$;
The ratio of WX to XY is 3:2.
Find: WX

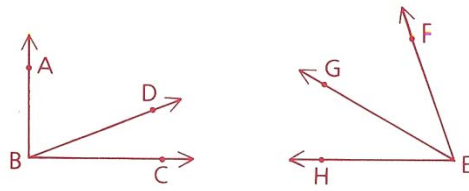


- 26** The measure of $\angle A$ is 6 greater than twice the measure of $\angle B$. If the angles' sum is 42° , find the measure of $\angle A$.

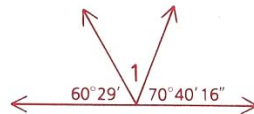
- 27 Given: $\angle ABC$ is a right angle.
 $\angle DBC = 20^\circ$,
 $\angle FEG = 40^\circ$,
 $\angle GEH = 30^\circ$

Prove: $\angle ABD \cong \angle FEH$

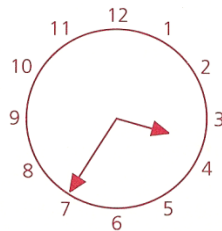
(Write a two-column proof.)



- 29 Find $m\angle 1$.



- 30 The diagram shows Kara's watch. If Kara cannot go home until 4:15, how many degrees must the hour hand travel before she can go home?

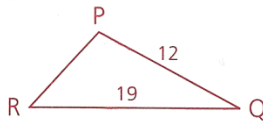


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- 32 If a point is chosen at random on \overline{PR} , what is the probability that it is within 6 units of Q?



- 33 The characteristics of a triangle require that PR be between what two values?



- 34 Given: \overrightarrow{BD} bisects $\angle ABC$.
 $m\angle ABC = 25$
Solve for x and y.

