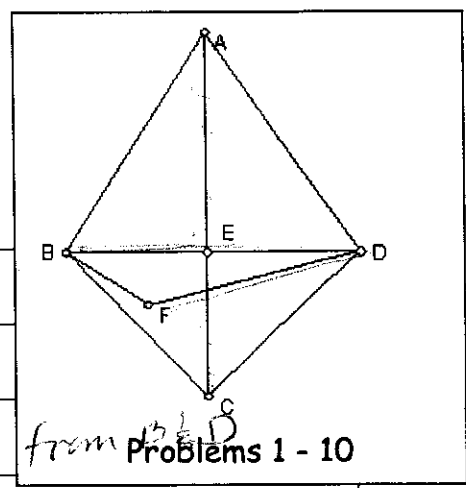


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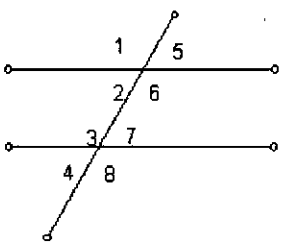
HONORS GEOMETRY Study Guide/Reteach
 SHOW ALL OF YOUR WORK FOR EVERY PROBLEM!!!

In problems 1-10 determine whether each statement is true (T) or false (F) based on the diagram.

GIVEN: $\angle ABD \cong \angle ADB$; $\overline{BC} \cong \overline{DC}$



Statement	True or False	Why or Why not?
1. $\overline{BC} \cong \overline{DC}$	T	Given
2. $\overline{BD} \perp$ bisector \overline{AC}	F	A & C are not equidistant from B & D
3. E and F determine the perpendicular bisector of \overline{BD}	F	F is not equidistant from B & D
4. E is the midpoint of \overline{BD}	T	lies on \perp bis. & is on seg.
5. E is the midpoint of \overline{AC}	F	we don't know
6. F is equidistant from B and D	F	not on \perp bis
7. \overline{AC} is a median in $\triangle ABD$	T	goes through mdpt & vertex A
8. \overline{AC} is an altitude in $\triangle BCD$	T	$AC \perp BD$
9. $\overline{AD} \parallel \overline{BC}$	F	not enough info (\overline{AD} would have to be \perp to \overline{BC})
10. \overline{AC} is a transversal for \overline{BE} and \overline{FD}	T	cuts both lines

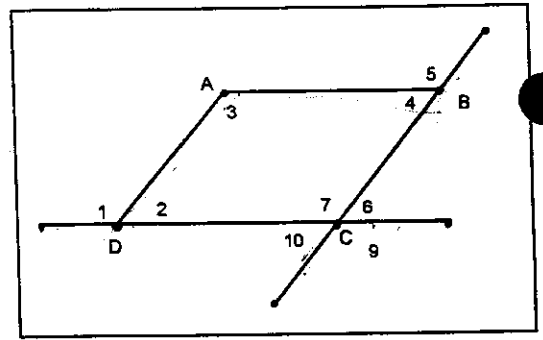


Problems 11 - 13

- Name all the pairs of alternate interior angles.
 $\angle 2, \angle 7$ $\angle 3, \angle 6$
- Name all the pairs of alternate exterior angles.
 $\angle 1, \angle 8$ $\angle 5, \angle 4$
- Name all the pairs of corresponding angles.
 $\angle 1, \angle 3$ $\angle 5, \angle 7$
 $\angle 2, \angle 4$ $\angle 6, \angle 8$

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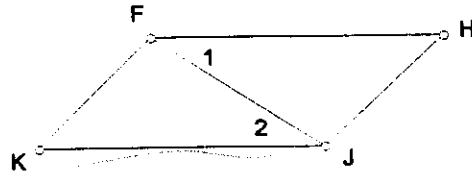
14. Complete the table below
Use the picture supplied in the
Box on the right.



Type of Angles	Transversal	Angle 1	Angle 2
Corresponding angles	\overline{BC}	$\angle 10$	$\angle 4$
Corresponding angles	\overline{BC}	$\angle 7$	$\angle 5$
Corresponding angles	\overline{DC}	$\angle 7$	$\angle 1$
Alt. int. \angle s	\overline{AB}	$\angle 3$	$\angle 5$
Alternate Interior angles	\overline{AD}	$\angle 3$	$\angle 1$
Alternate Interior angles	\overline{BC}	$\angle 4$	$\angle 6$
Alternate Exterior angles	\overline{DC}	$\angle 10$	$\angle 9$
Alternate Exterior angles	\overline{BC}	$\angle 5$	$\angle 9$
Vertical Angles	Vertex C	$\angle 10$	$\angle 6$
Vertical angles	Vertex C	$\angle 9$	$\angle 7$

15. For which two lines are $\angle 1$ and $\angle 2$
a pair of alternate interior angles?

$\overline{FH}, \overline{KJ}$



16. If two angles are both congruent and supplementary, then they are right angles.

17. If two angles are both congruent and complementary, then they are 45° angles.

18. If $\angle 1 \cong \angle 2$; $\angle 1$ is supplementary to $\angle 3$; $\angle 2$ is supplementary to $\angle 4$, what can you conclude?

What is the reason? $\angle 3 \cong \angle 4$ $\text{Supp } \cong \angle \cong \text{Supp } \cong \angle$

19. If $\overline{MO} \perp \overline{OP}$ and \overline{OP} has a slope of $-8/15$, then find the slope of \overline{MO} .

$\frac{15}{8}$

20. Are the points $(1,-1)$, $(4,6)$, and $(10,13)$ collinear? no all slopes are not =

Why or why not? Show your work to support your answer.

$m = \frac{4}{3}$ $m = \frac{7}{6}$

21. Find the coordinates of W, the midpoint of \overline{PQ} .

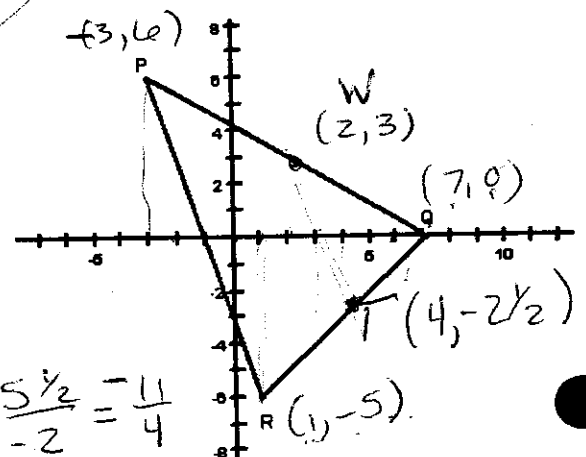
$(2, 3)$ Label the point W on the graph. $\frac{-3+7}{2}, \frac{6+0}{2}$

22. Find the coordinates of T, the midpoint of \overline{QR} .

$(4, -2)$ Label the point T on the graph.

23. Find the slope of \overline{TW} . $\frac{-11}{4} = -2\frac{3}{4}$

$$\frac{3 - (-2)}{2 - 4} = \frac{5}{-2} = -\frac{5}{2} = -2\frac{1}{2}$$



$$\frac{7+1}{2} = \frac{-5+0}{2}$$

NAME: _____

24. What is the slope of the x-axis? 0

25. What is the slope of the y-axis? undefined

26. If two lines are perpendicular, then the product of their slope is -1. (Assume that the lines are not vertical or horizontal.)

27. Find the slope of \overline{AB} .

$$\frac{-7-0}{9-7} = \frac{-7}{2}$$

28. Find the slope of the altitude to \overline{AB} .

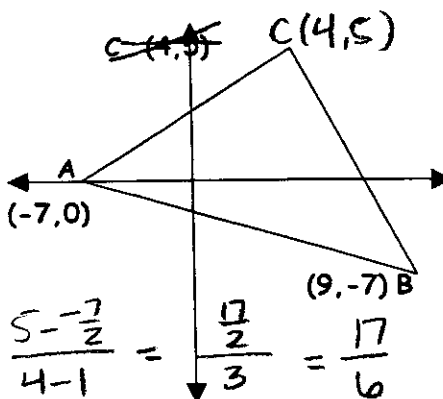
$$\frac{16}{7} \text{ (opp. recip.)}$$

29. Find the slope of the median to \overline{AB} .
mdpt of \overline{AB} : $(1, -\frac{7}{2})$ → slope:

$$\frac{5 - (-\frac{7}{2})}{4-1} = \frac{\frac{17}{2}}{3} = \frac{17}{6}$$

30. Find the slope of a line through B

parallel to \overline{AC} . same as slope of \overline{AC} : $\frac{5-0}{4-7} = \frac{5}{-3}$

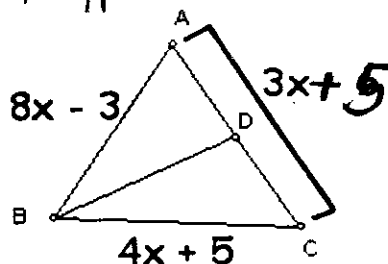


31. Given: \overline{BD} is the \perp bis. to \overline{AC} . Find AD .

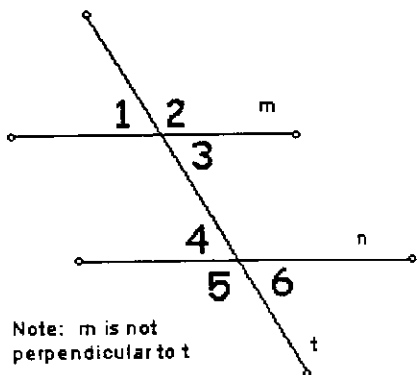
Since B is on \perp bis. of \overline{AC} , B is equid. from A and C

$$\begin{aligned} 8x-3 &= 4x+5 \\ 4x &= 8 \\ x &= 2 \end{aligned}$$

$$\begin{aligned} AD &= \frac{1}{2} (AC) \\ &= \frac{1}{2} (11) = 5.5 \end{aligned}$$



If two of the five numbered angles are selected at random, what is the probability that the two angles are



Note: m is not perpendicular to t

32. corresponding angles?

only 1,4 ; 3,6 work

$$\frac{2}{15}$$

33. alternate interior angles?

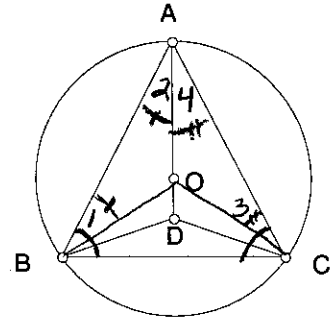
only 3,4 work

$$\frac{1}{15}$$

possibilities.

- 1,2 2,3 3,4 4,5 5,6
- 1,3 2,4 3,5 4,6
- 1,4 2,5 3,6
- 1,5 2,6
- 1,6

34. Given: Circle O, $\overline{BD} \cong \overline{CD}$
 Prove: $\angle ABC \cong \angle ACB$



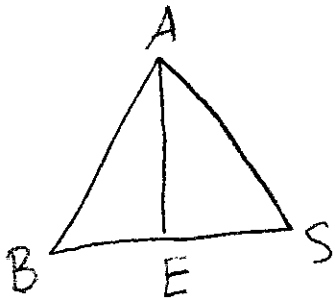
1. $\odot O, \overline{AB} \cong \overline{AC}$
2. $\angle ABC \cong \angle ACB$
3. Draw $\overline{OB}, \overline{OC}$
4. $\overline{OB} \cong \overline{OC} \cong \overline{OA}$
5. $\angle 1 \cong \angle 3, \angle 2 \cong \angle 4$
6. $\triangle ABO \cong \triangle ACO$
7. $\angle 1 \cong \angle 3, \angle AOB \cong \angle AOC$
8. $\overline{OD} \cong \overline{OD}$
9. $\angle AOB$ supp. $\angle BOD$
 $\angle AOC$ supp. $\angle COD$
10. $\angle BOD \cong \angle COD$

1. given
2. If Δ then Δ
3. Two points determine a line
4. All radii of a \odot are \cong
5. If Δ then Δ
6. SSS
7. CPCTC
8. Reflexive Prop.
9. 2 \angle s form straight $\angle \Rightarrow$ supp.
10. supps. of $\cong \angle$ s are \cong

11. $\triangle BOD \cong \triangle COD$ 11. SAS
12. $\angle OBD \cong \angle OCD$ 12. CPCTC
13. $\angle DBC \cong \angle DCB$ 13. subst.

Draw a figure, state both the given and the conclusion. Then write the proof.

35. If an altitude of a triangle also bisects an angle of the triangle, then the triangle is isosceles.



Given: \overline{AE} is altitude of $\triangle ABS$
 \overline{AE} bisects $\angle BAS$

Prove: $\triangle ABS$ is isosceles

1. $\overline{AE} \cong \overline{AE}$
2. $\angle BEA, \angle SEA$ are right \angle s
3. $\angle BEA \cong \angle SEA$
4. $\angle BAE \cong \angle SAE$
5. $\overline{AE} \cong \overline{AE}$
6. $\triangle BEA \cong \triangle SEA$
7. $\overline{AB} \cong \overline{AS}$
8. $\triangle ABS$ is isosceles

1. given
2. def. of altitude
3. rt. \angle s are \cong
4. def. bis.
5. Reflexive Prop.
6. ASA
7. CPCTC
8. def. isos.

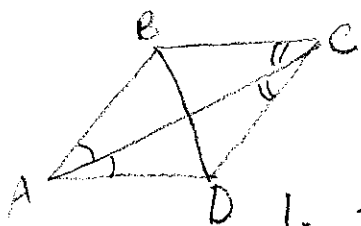
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36. If the diagonal of a quadrilateral bisects one pair of opposite angles, that diagonal is the perpendicular bisector of the other diagonal.

Given: \overrightarrow{AC} bisects $\angle BAD$

\overrightarrow{CA} bisects $\angle BCD$

Prove: $\overrightarrow{AC} \perp$ bis. \overline{BD}



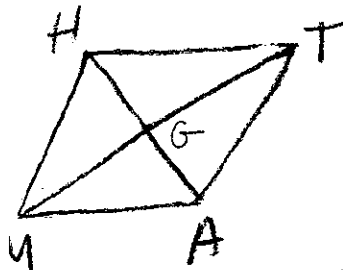
1. ~~~~~
2. $\angle BAC \cong \angle DAC$
 $\angle BCA \cong \angle DCA$
3. $\overline{AC} \cong \overline{AC}$
4. $\triangle ABC \cong \triangle ADC$
5. $\overline{AD} \cong \overline{AB}$, $\overline{CD} \cong \overline{CB}$
6. $\overrightarrow{AC} \perp$ bis. \overline{BD}

1. given
2. def. bis.
3. Reflexive Prop.
4. ASA
5. CPCTC
6. If 2 pts are equidistant from the endpoints of a segment, the 2 pts determine the \perp bis. of the segment.

37. If a four-sided polygon has all four sides congruent, then the lines joining opposite vertices are perpendicular.

Given: $\overline{MA} \cong \overline{AT} \cong \overline{TH} \cong \overline{HM}$

Prove: $\overline{TM} \perp \overline{HA}$



1. ~~~~~
2. $\overline{HA} \cong \overline{HA}$
3. $\triangle AHM \cong \triangle AHT$
4. $\angle GHM \cong \angle GHT$
5. $\overline{GH} \cong \overline{GH}$
6. $\triangle MGH \cong \triangle TGH$
7. $\angle MGH \cong \angle TGH$
8. $\angle MGH$ supp. $\angle TGH$
9. $\angle MGH$, $\angle TGH$ are right \angle s
10. $\overline{TM} \perp \overline{HA}$

1. given
2. Reflexive Prop.
3. SSS
4. CPCTC
5. Reflexive Prop.
6. SAS
7. CPCTC
8. 2 \angle s that form a straight \angle are supp.
9. \angle s that are \cong + supp. are rt. \angle s
10. def. \perp