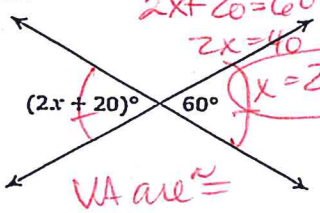
Geometry Semester 1 Exam Review

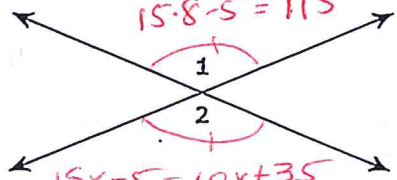
1. Two lines intersect as shown. What is the value of x?



2x+20=60
2x=40
x=20

VA are ≅

2. In this figure, $m\angle 1=(15x-5)°$ and $m\angle 2=(10x+35)°$. What is $m\angle 1$?

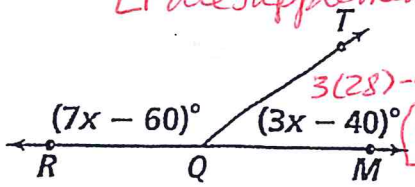


15·8-5 = 115°

15x-5=10x+35
5x-5 = 35 5x=40
x=8

3. What is $m\angle TQM$?

LP are supplementary

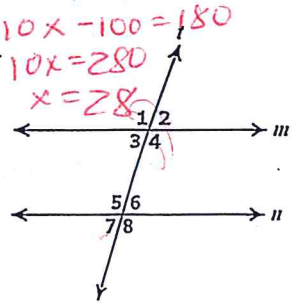


3(28)-40
44°

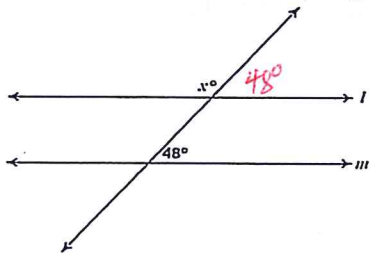
7x-60+3x-40=180
10x-100=180
10x=280
x=28

4. In this figure, line t is a transversal of lines m and n. Which of the following statements determines that lines m and n are parallel?

A. $\angle 2 \cong \angle 7$ B. $\angle 1 \cong \angle 4$
C. $\angle 3$ and $\angle 5$ are complementary
D. $\angle 6$ and $\angle 8$ are supplementary

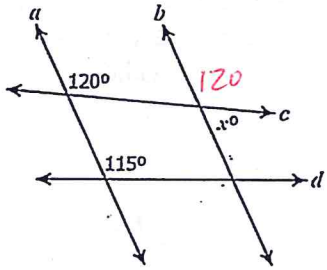


5. For what value of x is $l \parallel m$ in this figure?



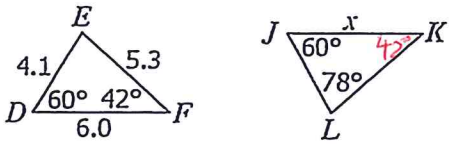
132°

6. If $a \parallel b$, what is the value of x?



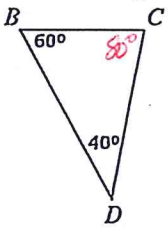
60°

7. What value of x makes $\Delta DEF \cong \Delta JLK$?



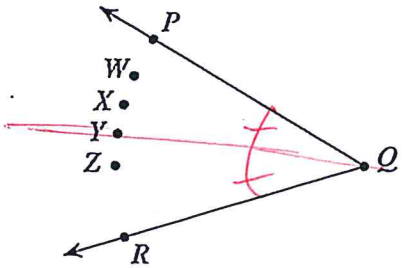
6.0

8. List the sides of ΔBCD in order from shortest to longest.

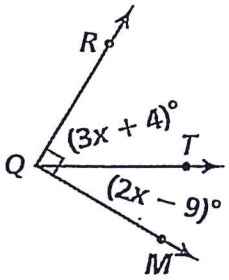


$\overline{BC}$
$\overline{CD}$
$\overline{BD}$

9. Which point lies on the bisector of $\angle PQR$?



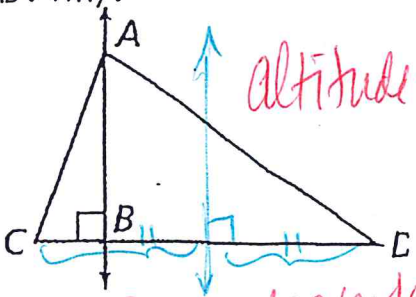
10. What is $m\angle TQM$?



2(19)-9=
29°

3x+4+2x-9=90
5x-5=90
5x=95
x=19

11. Which term best identifies $\overline{AB}$? Why?

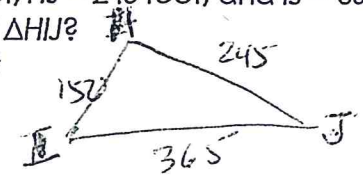


altitude-

Connects vertex to opp. side at a right ∟

12. Three survey markers are located on a map at points *H*, *I*, and *J*. A triangle is formed by connecting these markers by string so that *HI* =150 feet, *HJ* = 245 feet, and *IJ* = 365 feet. Which statement is true about the measures of the angles of ΔHIJ?

A. m∠*H* is the smallest
B. m∠*H* is the largest
C. m∠*I* is the smallest
D. m∠*I* is the largest



13. Let p=Two angles are adjacent. Let q=They share a common side.
Write the conditional statement p→q. Now write the inverse, converse, and contrapositive.

If two angles are adjacent, then they share a common side.
Conv. If two angles share a common side, then they are adjacent.
inv. If two angles are not adjacent, then they do not share a common side.
Contra. If two angles do not share a common side, then they are not adjacent.

14. Provide a counterexample for the following statement: If an animal has four legs, then it is a dog.

a cat

15. Identify the hypothesis and conclusion of the conditional: If a triangle is a right triangle, then its two acute angles are complementary. hypothesis: ~~given~~ a right Δ Conclusion: the two acute angles are
What is the converse of the conditional statement?

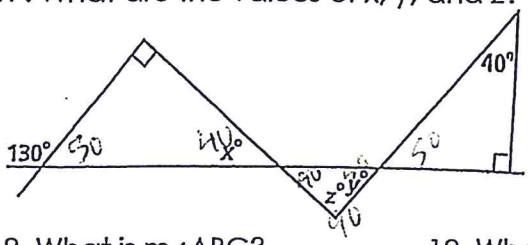
True If a Δ has 2 acute complementary angles, then it is a right Δ.

16. B is between A and C. If AB=3x+2, BC=5x-10, and AC=16, what is the value of x?

3x+2 5x-10
A B C

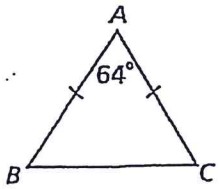
$3x+2+5x-10=16$
$8x-8=16$
$8x=24$
$x=3$

17. What are the values of x, y, and z?



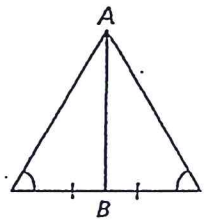
$x=40°$
$y=50°$
$z=90°$

18. What is m∠ABC?



58°

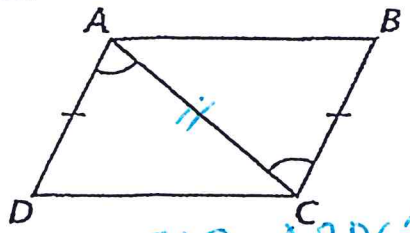
19. What can you conclude about $\overline{AB}$?



median
altitude
∠ bisector
⊥ bisector

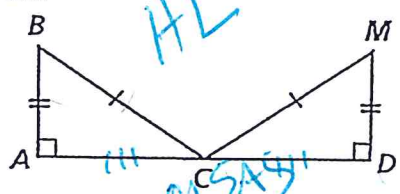
20-22: By what method can the triangles be proven congruent? Write a congruent statement for the triangles.

20.



SAS $\triangle ADC \cong \triangle CBA$

21.

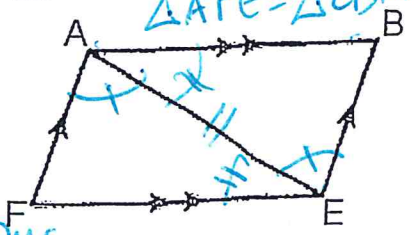


HL

AAS

SSS $\triangle ABC \cong \triangle DMC$

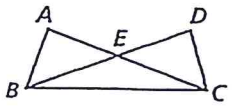
22.



ASA

$\triangle AFE \cong \triangle EBA$

23. Reorder the reasons of the following proof to match the correct statements.



Given: $\overline{AB} \cong \overline{DC}$

$\angle ABC \cong \angle DCB$

Prove: $\overline{AC} \cong \overline{DB}$

Statements	*Reasons*
1. $\overline{AB} \cong \overline{DC}$	4 a. SAS Postulate
2. $\angle ABC \cong \angle DCB$	3 b. Reflexive Property
3. $\overline{BC} \cong \overline{CB}$	1 or 2 c. Given
4. $\triangle ABC \cong \triangle DCB$	5 d. CPCTC
5. $\overline{AC} \cong \overline{DB}$	1 or 2 e. Given

24. The vertex angle of an isosceles triangle is three times the measure of a base angle. What is the measure of the vertex angle?

$5x = 180$

$x = 36$

$3 \cdot 36 = 108°$

25. Two sides of a triangle are 4 cm and 9 cm. What are possible lengths for the third side?

$5 < x < 13$

26. Can a triangle be formed with side lengths that are 4, 9, and 12? Explain.

yes

$4+9>12$

27. If the perimeter of isosceles triangle XYZ is 40 and XZ=16, what are the possible values for YZ?

40

~~16~~

12, 12, 16 16, 16, 8 8, 12, 16

XZ

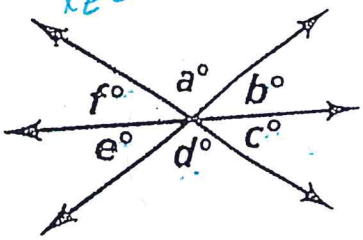
28. Give the diagram at the right, which of the following must be true?

I. e+f=b+c

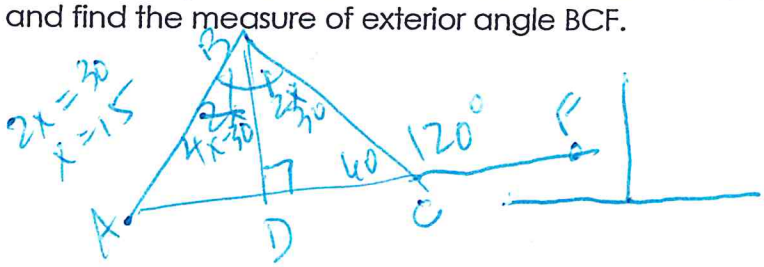
II. f+c=a+d

III. e+a+c=f+b+d

A. I only B. I and III C. I and II D. I, II, and III



29. $\triangle ABC$ is an acute triangle. $\overline{BD} \perp \overline{AC}$ and $\overline{BD}$ bisects $\angle ABC$. $m\angle CBD=2x$, and $m\angle ABD=4x-30$. Draw a figure and find the measure of exterior angle BCF.



$2x = 30$

$x = 15$