AMDG

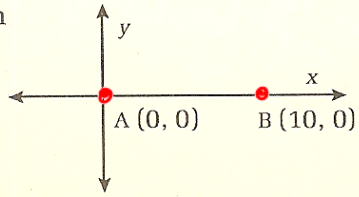
NAME KEY

Ms. Kresovic

Adv Geo – Period

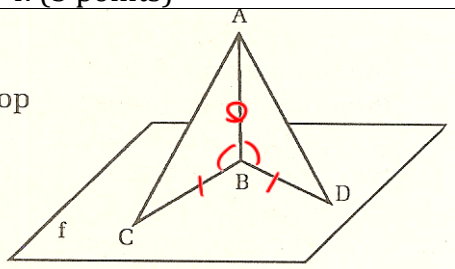
Congruent Triangles (ch 3) Pop Test

Tue., 27 Oct. 2015

	Write A for Always, S for Sometimes, or N for Never in the right-most column. (1 pt each, 4 points)	Write answer in this column
1.	A triangle has 3 sides.	1. A
2.	If a median of a triangle is also an altitude of the triangle, the triangle is ~~scalene~~. isosceles	2. N
3.	If an angle is selected at random from a triangle, the angle is obtuse.	3. S
4.	If A = (0, 0), B = (10, 0), and $\overline{AB}$ is rotated 90° with respect to the origin, then B will rotate to the point (0, −10). 	4. S – yes if clock wise no if counter clockwise

5. Complete statements 2 & 3 and reasons 2 – 4. (5 points)

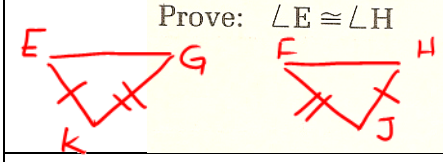
Given: Two triangles, △ABC and △ABD, standing on a desktop called f
$\overline{BC} \cong \overline{BD}$
$\angle ABC \cong \angle ABD$
Prove: $\overline{AC} \cong \overline{AD}$

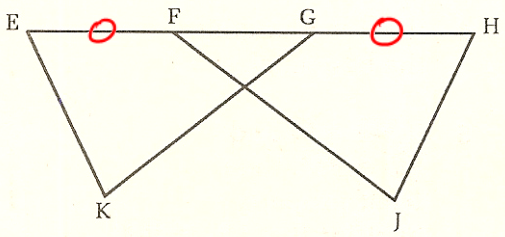


	Statements		Reasons
1.	Two triangles, △ABC and △ABD, standing on a desktop called f $\overline{BC} \cong \overline{BD}$ $\angle ABC \cong \angle ABD$	1.	Given
2.	$\overline{AB} \cong \overline{AB}$	2.	REFLEXIVE PROP.
3.	$\Delta ABC \cong \Delta ABD$	3.	SAS (1, 1, 2)
4.	$\overline{AC} \cong \overline{AD}$	4.	CPCTC (3)

6. Complete lines 2 – 4. (6 points)

Given: $\overline{EK} \cong \overline{HJ}$
$\overline{KG} \cong \overline{JF}$
$\overline{EF} \cong \overline{HG}$
Prove: $\angle E \cong \angle H$

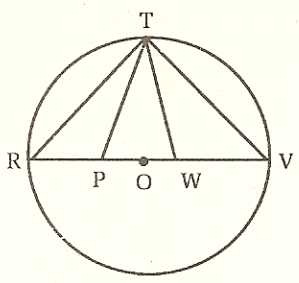




	Statements		Reasons
1. S S	$\overline{EK} \cong \overline{HJ}$, $\overline{KG} \cong \overline{JF}$, $\overline{EF} \cong \overline{HG}$	1.	Given
2. S	$\overline{EG} \cong \overline{FH}$	2.	ADD
3.	$\triangle EKG \cong \triangle HJF$	3.	SSS (1, 1, 2)
4.	$\angle E \cong \angle H$	4.	CPCTC (3)

7. Complete statements 2 & 3 and reasons 2 – 4. (10 points)

Given: $\odot O$
$\angle R \cong \angle V$
$\overline{PO} \cong \overline{OW}$
Prove: $\overline{TP} \cong \overline{TW}$



	Statements		Reasons
1.	$\odot O$	1.	Given
2.	$\overline{OR} \cong \overline{OV}$	2.	$\odot \Rightarrow \cong$ RADII
3.	$\overline{PO} \cong \overline{OW}$	3.	Given
S 4.	$\overline{RP} \cong \overline{VW}$	4.	SUBTRACT (2 & 3)
A 5.	$\angle R \cong \angle V$	5.	Given
S 6.	$\overline{RT} \cong \overline{TV}$	6.	$\triangle \Rightarrow \triangle$ (S)
7.	$\triangle TRP \cong \triangle TVW$	7.	SAS (4 5 6)
8.	$\overline{TP} \cong \overline{TW}$	8.	CPCTC (7)

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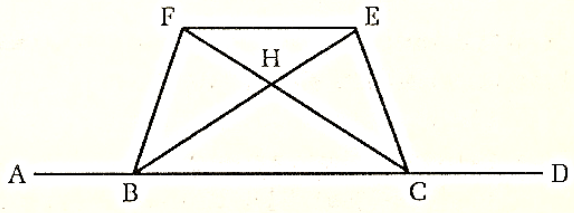
Supply the missing reasons in the proof for problem (5 points)

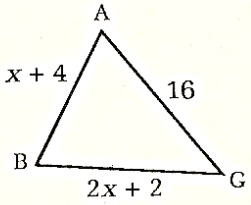
8. Given: $\angle EBC \cong \angle FCB$
$\angle ABF \cong \angle DCE$
$\overline{CH} \cong \overline{FB}$
Prove: $\triangle EHC$ is isosceles.



Statements	Reasons
A 1 $\angle EBC \cong \angle FCB$	1 Given
2 $\angle ABF$ is supp. to $\angle FBC$. $\angle DCE$ is supp. to $\angle ECB$.	2 If two angles form a straight angle, then they are supplementary.
3 $\angle ABF \cong \angle DCE$	3 Given
A 4 $\angle FBC \cong \angle ECB$	4 ∠S SUPP TO ≅ ∠S ⇒ ≅ ∠S (2&3)
S 5 $\overline{BC} \cong \overline{BC}$	5 REFLEXIVE
6 $\triangle FBC \cong \triangle ECB$	6 ASA (154)
7 $\overline{FB} \cong \overline{EC}$	7 CPCTC
8 $\overline{CH} \cong \overline{FB}$	8 Given
9 $\overline{EC} \cong \overline{CH}$	9 TRANSITIVE
10 $\triangle EHC$ is isosceles.	10 AT LEAST 2 SDS ≅ ⇒ ISOSCELES Δ.

Exercises 9 – 13 are 3 points each.

9. The perimeter of $\triangle BAG$ is 43. AG = 16, AB = x + 4, BG = 2x + 2. By solving for x, determine whether $\triangle BAG$ is scalene, isosceles, or equilateral.

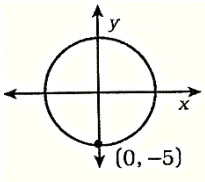


AG + AB + BG = P
16 + x+4 + 2x+2 = 43
3x + 22 = 43
3x = 21
x = 7

then AG = 16
AB = 11
BG = 16
∴ △BAG is

9. Isosceles

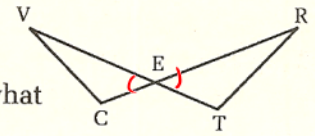
10. The circle has its center at the origin and passes through (0, -5). Find the **exact** area of the circle.



r = 5, $A = \pi r^2$

10. 25π

11. $EC = 12$, $ET = 3x - 5$,
$VE = 10$, $ER = x + 4$
$m\angle VEC = 5x - 2$
$m\angle RET = 3x + 10$
On the basis of the given, what must be the value of x?
Is $\triangle VEC \cong \triangle RET$?



$\angle VEC \cong \angle RET$ (vertical $\angle$s $\Rightarrow \cong \angle$s)

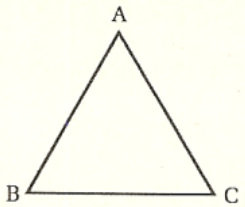
$5x - 2 = 3x + 10$

$2x = 12$

$x = 6$

then $ER = 10 = VC$ & $ET = 3(6) - 5 = 13 \neq EC$ $\therefore$ No

12. $\angle B \cong \angle C \rightarrow AC = AB$
$AB = 3x + 1$, $AC = 2x + 5$,
$BC = x + y$
Solve for x.
If $y < 2.97$, then BC must be less than what number?



$3x + 1 = 2x + 5$

$x = 4$

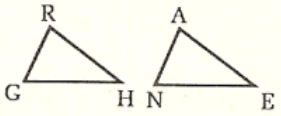
DIFF $< BC <$ SUM

$0 < x + y < 26$

$0 < 4 + y < 26$

$-4 < y < 22$

13. $\triangle RGH \cong \triangle ANE \rightarrow \angle G \cong \angle N$ (CPCTC)
$GH = 10$
$m\angle G = 2w + 2$,
$m\angle N = 17w - 658$
By solving for w, tell whether or not $\overline{AN}$ is an altitude of $\triangle ANE$.



$2w + 2 = 17w - 658$

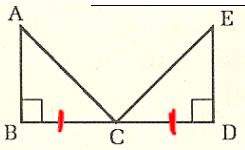
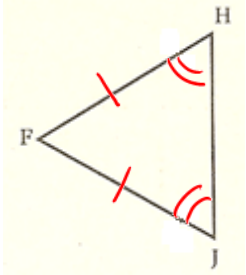
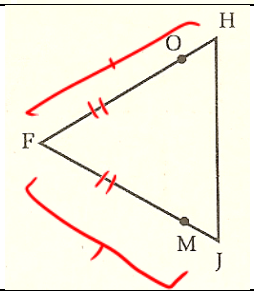
$660 = 15w$

$44 = w$

then $\angle N = \angle G = 2(44) + 2 = 90°$

$90° \rightarrow$ rt $\angle$

rt $\angle \rightarrow$ alt $\rightarrow$ Yes, AN is an altitude

14.	A triangle in which no two sides are congruent is called a(n) _____ triangle.	14. SCALENE
15.	In the diagram, if $\overline{BC} \cong \overline{CD}$, then in order to prove $\triangle ABC \cong \triangle EDC$ by HL, what additional two sides must be congruent? 	15. $\overline{AC} \cong \overline{EC}$
16.	In a triangle, what name is given to a line segment drawn from a vertex to the midpoint of the opposite side?	16. MEDIAN
17.	If $\overline{FH} \cong \overline{FJ}$, name the base angles. 	17. $\angle H \cong \angle J$
18.	If $\overline{FH} \cong \overline{FJ}$ and $\overline{FO} \cong \overline{FM}$, then what property justifies that $\overline{HO} \cong \overline{JM}$? 	18. SUBTRACTION

This has been a practice test. If this had been the actual test, it would have been shorter.

Answer key will be posted on the website. Please use this to help you study over the weekend.

Review the systems from chapters 1, 2, & 3 in preparation for the test. Any of the axioms may used.


DO YOUR HOMEWORK.
MATH TIPS
5¢
PUSH