Pre-EOC Assesment

Geometry #1

Wahkiakum School District



1. What is the converse of "If there are clouds in the sky, then it is raining"?

A If it is raining, then there are clouds in the sky.

- B If it is not raining, then there are clouds in the sky.
- C If it is raining, then there are no clouds in the sky.
- D If it is not raining, then there are no clouds in the sky.
- 2. Given LM = MP and L, M, and P are collinear, which of the following BEST describes the relationship of L, M, and P?
 - A $\overline{LM} \cong \overline{MP}$
 - B *M* is the midpoint of \overline{LP} .
 - C *M* bisects \overline{LP} .
 - D All of the above
- 3. Two congruent triangles have the following corresponding parts: $\overline{RS} \cong \overline{UV}, \overline{RT} \cong \overline{UW}$, and $\angle R \cong \angle U$. Which is NOT necessarily a correct congruence statement?
 - $A \triangle RST \cong \triangle UVW$ $B \triangle STR \cong \triangle VWU$ $C \triangle TRS \cong \triangle VWU$
 - $\mathsf{D} \ \triangle TRS \cong \triangle WUV$
- 4. What postulate or theorem proves $\angle K \cong \angle M$?



Converse of the Isoceles Triangle Thm.

5. Two angles of a triangle measure 22° and 53° . What is the measure of the third angle?

А	15 ⁰	С	75 ⁰
В	25 ⁰	D	105 ⁰

6. Find the values of the variables. Give your answers in simplest radical form.



X=10, Y=20



About 43 degrees

8. **Given:** X is the midpoint of $AC \cdot \angle 1 \cong \angle 2$ **Prove:** X is the midpoint of *BD*.



X is mdpt of AC	Given
1=2	Given
AX=XC	Def of Mdpt
AXD=CXB	Vert Angles Thm
Tri. AXD=Tri. CXB	ASA
DX=XB	CPCTC
X is mdpt of BD	Def of mdpt

9. What is the inverse of the conditional statement "If a number is divisible by 6, then it is divisible by 3"?

A If a number is divisible by 3, then it is divisible by 6.

B If a number is not divisible by 6, then it is not divisible by 3.

- C If a number is not divisible by 3, then it is not divisible by 6.
- D If a number is not divisible by 6, then it is divisible by 3.
- 10. What is the length of the longest side of the triangle?

A 8.5

B 26

A A only

B B only



11. **Given:** *ABCD* is a parallelogram, $\overline{AC} \perp \overline{BD}$, and $\overline{AB} \cong \overline{CD}$. **Conclusion:** *ABCD* is a square. What can be said about the conclusion?



A Valid	
B Not valid	

12. Which of the quadrilaterals MUST be parallelograms?



Use the partially completed two-column proof for the next three problems.

Given: \overline{GJ} bisects $\angle FGH$, $\overline{FG} \cong \overline{HG}$



Prove: $\overline{FJ} \cong \overline{HJ}$ **Proof:**

Statements	Reasons
1. \overline{GJ} bisects $\angle FGH$.	1. Given
$2. \ \angle FGJ \cong \angle HGJ$	2. Def. of ∠ bisector
3. $\overline{FG} \cong \overline{HG}$	3. Given
$4. \ \angle F \cong \angle H$	4?
5. $\Delta FGJ \cong \Delta HGJ$	5
6. $\overline{FJ} \cong \overline{HJ}$	6?

- 13. Which reason belongs in Step 4?
 - A Isosc. \triangle Thm.
 - B Conv. of Isosc. \triangle Thm.
 - C ASA
 - D Def. of \angle bisector
- 14. Which reason belongs in Step 5?
 A Isosc. △ Thm.
 B ASA

C CPCTC D HL

- 15. Which reason belongs in Step 6?
 - A Isosc. riangle Thm.
 - B ASA
 - С СРСТС
 - D Def. of \angle bisector

16. Given parallelogram *JKLM* which is valid?



- A If $\angle JXK \cong \angle KXL$, then *JKLM* is a rhombus.
 - B If $\triangle JXM \cong \triangle JXK$, then *JKLM* is a square.
 - C If $\triangle JXM \cong \triangle LXK$, then *JKLM* is a square.
 - D If $\angle MJK \cong \angle KXL$, then *JKLM* is a rectangle.
- 17. When the angle of elevation of the sun is 50°, a flagpole casts a shadow that is 16.8 feet long. What is the height of the flagpole to the nearest foot?



A 14 ft
B 20 ft

18. A cottage has a gable roof. To the nearest foot, how wide is the cottage?



A 12 ft	
B 24 ft	
C 35 ft	
D 70 ft	

19. What is the area of $\triangle JKL$ if the coordinates of *J*, *K*, and *L* are *J*(0, 0), *K*(0, 3), and *L*(4, 0)?



Use the partially completed two-column proof for the problem below. Given:



Prove: $\triangle GHF \cong \triangle MOL$ Proof:

Statements	Reasons
1. $\overline{GF} \cong \overline{ML}$, $\overline{FH} \cong \overline{LO}$, $\overline{GH} \cong \overline{MO}$	1. Given
2. ∠F≅ ∠L	2?
3. ∠H≅ ∠O	3. Given
$4. \angle G \cong \angle M$	4
5. $\triangle GHF \cong \triangle MOL$	5

20. Which reason does NOT belong in the proof?

A Def. of $\cong \bigtriangleup s$

- B Third \measuredangle Thm.
- C Rt. $\angle \cong$ Thm.

D CPCTC

21. Which points are the vertices of a rectangle that is NOT a square?

A (-10, 10), (0, 0), (14, 2), (4, 12)	
B (-4, 1), (-1, 4), (5, -2), (2, -5)	
C (2, 2), (6, -2), (2, -6), (-2, -2)	
D Not here	

22. *M* is the midpoint of \overline{RS} and *R* has coordinates (2, 5). *M* has coordinates (6, 9). Find the coordinates of *S*.

<u>A (4.5, 6.5)</u>	C (4, 4)
B (10, 13)	D (16, 16)

Use the partially completed two-column proof for the two problems below.

Given: $\overline{JK} \cong \overline{LK}$; $\angle JYL$ and $\angle LXJ$ are rt. $\angle s$.



Prove: $\overline{JY} \cong \overline{LX}$ **Proof:**

Statements	Reasons
1. ∠ <i>KJL</i> \cong ∠ <i>KLJ</i>	1?
2. $\overline{JL} \cong \overline{LJ}$	2
3. $\angle JYL$ and $\angle LXJ$ are rt. \measuredangle .	3. Given
4. ∠JYL \cong ∠LXJ	4
5. $ riangle JYL \cong riangle LXJ$	5
6. $\overline{JY} \cong \overline{LX}$	6

- 23. Which justification belongs in Step 1?
 - A Isosc. riangle Thm.
 - B Reflex. Prop. of \cong
 - C Rt. $\angle \cong$ Thm.
 - D CPCTC
- 24. Which justification belongs in Step 6?
 - A Isosc. \triangle Thm.
 - ΒHL

 $\begin{array}{c} \mathsf{C} \quad \mathsf{Rt.} \ \angle \cong \ \mathsf{Thm.} \\ \hline \mathbf{D} \quad \mathbf{CPCTC} \end{array}$

25.	What should you do if you want to double the area of a rectangle?
	A Double either the length or the width but not both.
	B Double both the length and the width.

26. If the radius of a circle is multiplied by 3, which is true?

A The circumference is tripled.

B The area is tripled.

Use the Given information for the two problems below.

- **Given:** An isosceles triangle *ABC* with $\overline{AB} \cong \overline{BC}$ and a perpendicular bisector \overline{BD} from *B* to \overline{AC} .
- 27. Position the figure in the coordinate plane and assign coordinates to each point so proving that the area of $\triangle ABD$ is equal to the area of $\triangle CBD$ using a coordinate proof would be easier to complete.

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28. Write a coordinate proof to prove that the area of $\triangle ABD$ is equal to the area of $\triangle CBD$.

Possible answer: $\triangle ABD$ is a right triangle with base AD and height BD. $\triangle CBD$ is a right triangle with base CD and height BD. Area of $\triangle ABD = \frac{1}{2}bh = \frac{1}{2}(4)(2) = 4$ square units. Area of $\triangle CBD = \frac{1}{2}bh = \frac{1}{2}(4)(2) = 4$ square units. The area of $\triangle ABD$ is equal to 4 square units, which equals the area of $\triangle CBD$.

29. An air-traffic controller at an airport sights a plane at an angle of elevation of 34°. The pilot reports that the plane's altitude is 3200 feet. To the nearest foot, what is the horizontal distance between the plane and the airport?



30. The altitude to the hypotenuse of a right triangle has a length of 12. What could be the lengths of the two segments of the hypotenuse?

