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 $\triangle TRS \cong \triangle VWU$
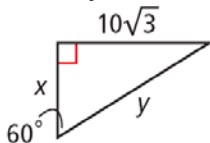   D $\triangle TRS \cong \triangle WUV$

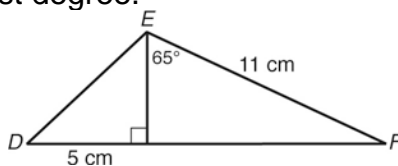4. What postulate or theorem proves $\angle K \cong \angle M$?

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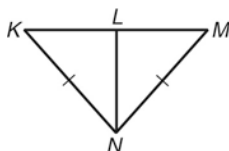
5. Two angles of a triangle measure 22° and 53°. What is the measure of the third angle?

   A 15° C 75°
   B 25° D 105°
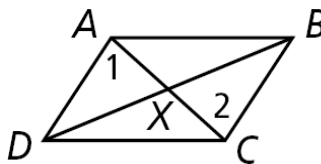
6. Find the values of the variables. Give your answers in simplest radical form.


_____

7. Find m∠D to the nearest degree.

_____

8. **Given:** X is the midpoint of $\overline{AC}$. ∠1 ≅ ∠2
   **Prove:** X is the midpoint of *BD*.

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?
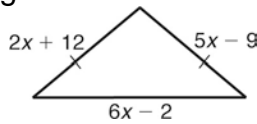
    A 8.5   C 19
    B 26   D 40

11. **Given:** *ABCD* is a parallelogram, $\overline{AC} \perp \overline{BD}$, and $\overline{AB} \cong \overline{CD}$.
    Conclusion: *ABCD* is a square.
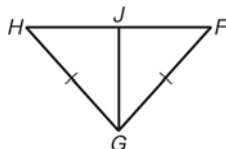   What can be said about the conclusion?
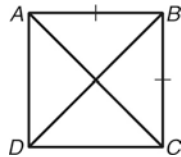
    A Valid
    B Not valid

12. Which of the quadrilaterals MUST be parallelograms?
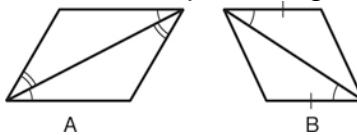
    A A only   C Neither A nor B
    B B only   D Both A and B

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 $\angle$ bisector
3. $\overline{FG} \cong \overline{HG}$	3. Given
4. $\angle F \cong \angle H$	4. _____?_____
5. $\triangle FGJ \cong \triangle HGJ$	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.
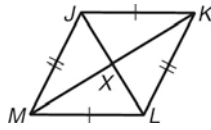   C ASA
        D Def. of $\angle$ bisector

14. Which reason belongs in Step 5?
        A Isosc. $\triangle$ Thm.   C CPCTC
   B ASA   D HL

15. Which reason belongs in Step 6?
        A Isosc. $\triangle$ Thm.
        B ASA
        C CPCTC
   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
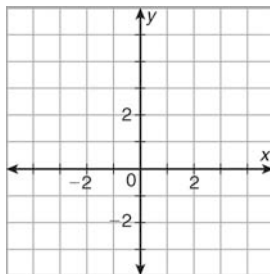   16.8 feet long. What is the height of the flagpole to the nearest foot?
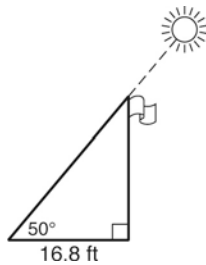
    A 14 ft
    B 20 ft

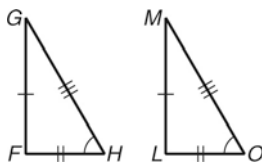18.   A cottage has a gable roof. To the nearest foot, how wide is the cottage?
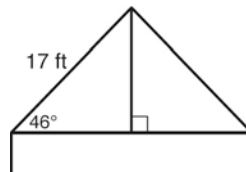
    A 12 ft
    B 24 ft
    C 35 ft
    D 70 ft

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

    A 6 units^2 C 12 units^2

    B 6 units   D 12 units

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

Given:

**Prove:** △GHF ≅ △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. ∠G ≅ ∠M	4. _____?_____
5. △GHF ≅ △MOL	5. _____?_____

20. Which reason does NOT belong in the proof?
      A Def. of ≅ △s
      B Third ∡ Thm.
      C Rt. ∠ ≅ 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*.
    A (4.5, 6.5)   C (4, 4)
    B (10, 13)   D (16, 16)

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

Given: $\overline{JK} \cong \overline{LK}$; ∠*JYL* and ∠*LXJ* are rt. ∡.
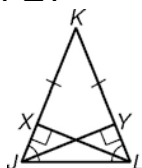
Prove: $\overline{JY} \cong \overline{LX}$
Proof:

Statements	Reasons
1. ∠*KJL* ≅ ∠*KLJ*	1. ____?____
2. $\overline{JL} \cong \overline{LJ}$	2. ____?____
3. ∠*JYL* and ∠*LXJ* are rt. ∡.	3. Given
4. ∠*JYL* ≅ ∠*LXJ*	4. ____?____
5. △*JYL* ≅ △*LXJ*	5. ____?____
6. $\overline{JY} \cong \overline{LX}$	6. ____?____

23. Which justification belongs in Step 1?
    A Isosc. △ Thm.
    B Reflex. Prop. of ≅
    C Rt. ∠ ≅ Thm.
    D CPCTC

24. Which justification belongs in Step 6?
    A Isosc. △ Thm.   C Rt. ∠ ≅ Thm.
    B HL   D CPCTC

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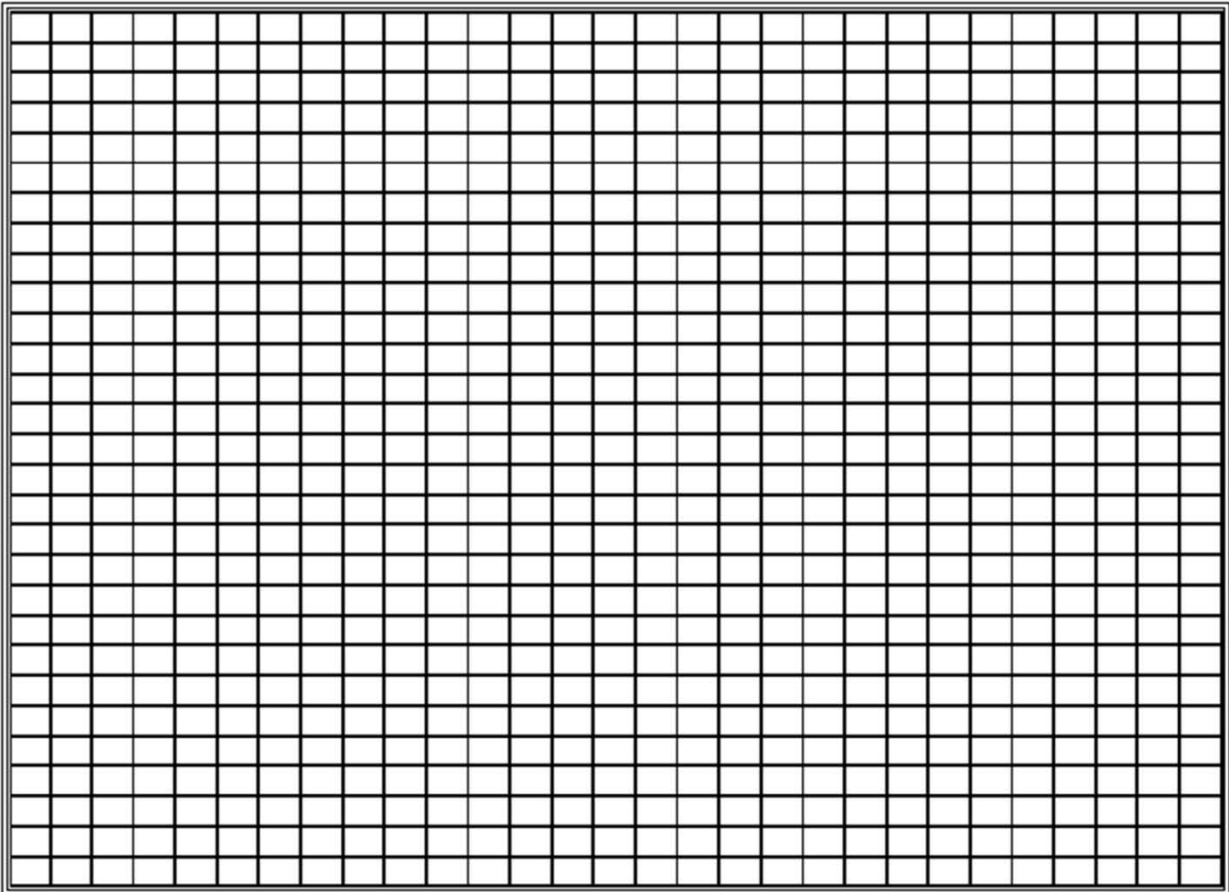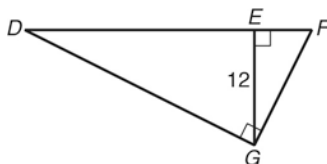
28. Write a coordinate proof to prove that the area of △ABD is equal to the area of △CBD.

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?

3200 ft

34°
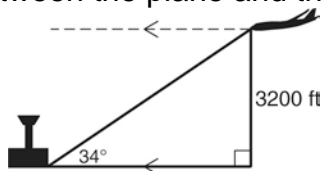
    A 4744 ft
    B 2159 ft

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?

    A 2 and 6   C 6 and 24
    B 2 and 8   D 6 and 30