



Geometry Midterm Exam.2019

Print Full Name _____

Proctor Signature _____

DIRECTIONS: You may use a calculator, compass, straight edge, protractor, and pencil only. No book or notes allowed. Where work should be shown you will receive no credit without sufficient work to justify your answer. Where units are required you will lose points for failure to include them or for using incorrect units. For multiple choice questions please state the letter corresponding to your choice.

Please write legibly and ensure your upload is dark enough to be read when graded. Please upload as a .pdf and ensure all pages are upright and included in a single document. You may use other paper for your own scratch work. However, only the work shown on this document will be graded. Time limit is **3** hours.

1. Carefully print the converse of this statement: *If Michael Jordan quits practicing he will miss shots!*"

1. _____

2. State the complement of the angle 68° .

3. How many lines of symmetry does this figure have?



4. The acute angles of a right triangle are _____.
(Your options are: equal, unequal, complementary, supplementary)

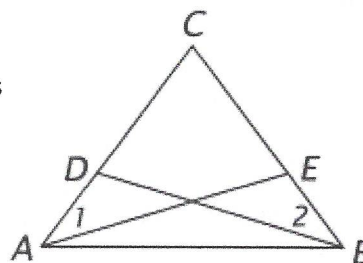
5. Which of the following could NOT be the lengths of the sides of a triangle?

- A. 3, 4, 5
B. 1.5, 1.5, 2
C. 9, 17, 25
D. 5, 7, 12

6. For which of the following quadrilaterals do the diagonals NOT bisect each other?

- A. Rectangles
B. Rhombuses
C. Trapezoids
D. Parallelograms

7. If $AC=BC$ and $\angle 1=\angle 2$, then which of the only 5 ways of proving triangles $\cong$ proves $\triangle ACE \cong \triangle BCD$?



2. _____

3. _____

4. _____

5. _____

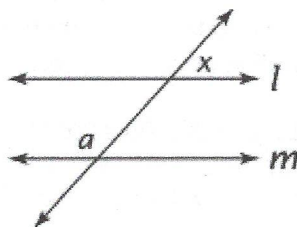
6. _____

7. _____

8. Which of the following MAY NOT be given as a reason for a step in a geometric proof?

- A. A definition
- B. A previously proven theorem
- C. A postulate
- D. A measurement made with a ruler

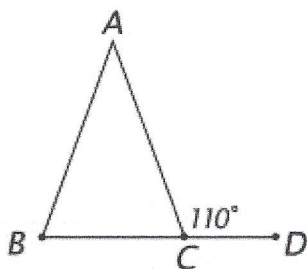
9. Given: line l is parallel to line m .
State the value of x in terms of a ?



10. Which one of the following will NOT prove that a quadrilateral is a parallelogram?

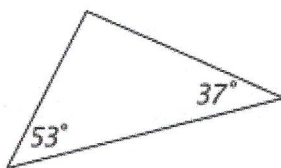
- A. Both pairs of opposite sides are equal
- B. One pair of opposite sides are both parallel and equal
- C. Both pairs of opposite angles are equal
- D. Two pairs of sides are equal

11. In the figure below, B-C-D, $AB=AC$ and $\angle ACD=110^\circ$. What is the measure of $\angle A$?



12. Which of the following describes this triangle? (NOT drawn to scale)

- A. right scalene
- B. obtuse scalene
- C. right isosceles
- D. obtuse isosceles



13. Given: Point B is between A and C. Which of the following is NOT necessarily true?

- A. A, B, and C are collinear
- B. $AB=BC$
- C. $AB+BC=AC$
- D. $AC>AB$

8. _____

9. $x =$ _____

10. _____

11. _____

12. _____

13. _____

14. If the hypotenuse and an acute angle of one right triangle are equal to the corresponding parts of another right triangle, which of the 5 ways to prove triangles congruent would work? (Recommend: Draw/Mark a picture)

14. _____

15. Which of the following figures always has at least one line of symmetry?

- A. An isosceles triangle
- B. A rhombus
- C. A parallelogram
- D. A circle

15. _____

16. State the number of *acute angles* present in each type of triangle.

- A. Acute
- B. Right
- C. Obtuse

16A. _____

16B. _____

16C. _____

17. Two angles are both supplementary and equal. Which of the following **MUST** be true?

- A. They are a linear pair.
- B. They are straight angles
- C. They are right angles
- D. They are each 45°

17. _____

For each statement, If the statement is *ALWAYS true* write *T*. If *not*, do NOT write "F." Instead, write the word, words, or number that could replace the underlined word/number to make the statement true.

18. If an obtuse angle is bisected then two acute angles are formed.

18. _____

19. A transformation is a(n) dilation if and only if it preserves distance and angle measure.

19. _____

20. No two angles of a scalene triangle are equal.

20. _____

21. If two parallel lines are cut by a transversal, then interior angles on the same side of the transversal (same-side interior angles) must be equal.

21. _____

22. The supplement of a 36° angle is 144° .

22. _____

23. All lines parallel to a given line are parallel to each other.

23. _____

24. The side opposite the right angle in a right triangle is the hypothesis.

24. _____

25. A rotation is a composite of two successive reflections through parallel lines.

25. _____

26. An equilateral rectangle is a square.

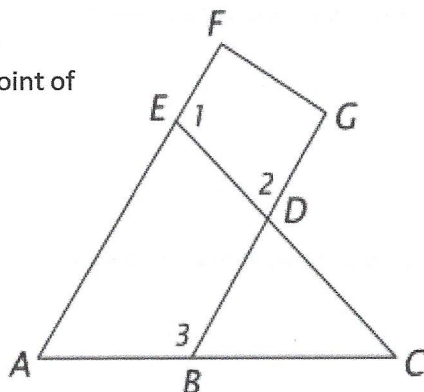
26. _____

Use the information given to find the measures of the indicated segments and angles.
NOTE: The figures are NOT drawn to scale. Recommend: Mark the figure as you go.

27. A-E-F, B-D-G, $\angle F$ and $\angle G$ are right angles.
D is the midpoint of EC and B is the midpoint of AC. AE=10, DC=6, $\angle A=80^\circ$, and $\angle C=40^\circ$.

Find:

- A. $\angle GDC$
- B. $\angle 1$
- C. $\angle 2$
- D. $\angle 3$

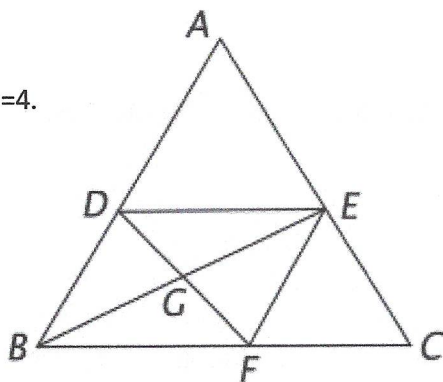


- 27A. _____
- 27B. _____
- 27C. _____
- 27D. _____

28. ABC is equilateral.
 $DE \parallel BC$, $EF \parallel AB$.
AB=10, BE=8, and AD=4.

Find:

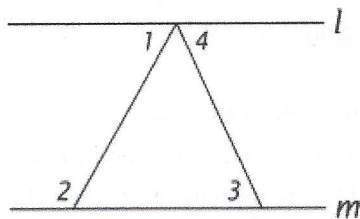
- A. $\angle C$
- B. EC
- C. DE
- D. $\angle BFE$



- 28A. _____
- 28B. _____
- 28C. _____
- 28D. _____

29. Given: line $l \parallel$ line m . $\angle 1=50^\circ$,

- A. Find $\angle 2$.
- B. If $\angle 3=(x+8)^\circ$ and $\angle 4=(3x-42)^\circ$, find $\angle 4$.



- 29A. _____
- 29B. _____

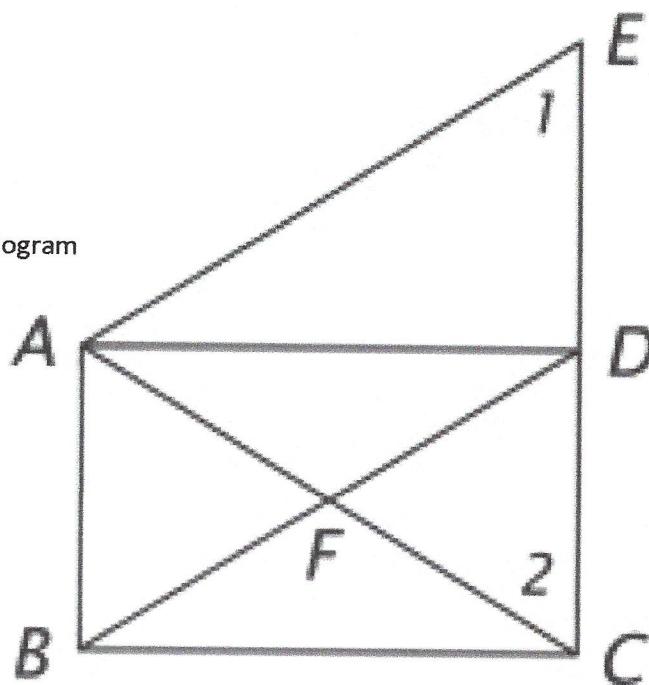
30. Supply the reasons for the following proof.

NOTE: IF any reasons are "substitution"

THEN you must state which steps.

Given: ABCD is a rectangle and ABDE is a parallelogram

Prove: $\angle 1 = \angle 2$



STATEMENTS

REASONS

1. ABCD is a rectangle

1. _____

2. $AC = BD$

2. _____

3. ABDE is a parallelogram

3. _____

4. $AE = BD$

4. _____

5. $AC = AE$

5. _____

6. $\angle 1 = \angle 2$

6. _____

