2019-2020 Geometry Honors District Midterm Exam (Calculator Permissible)

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- 1. R, S, and T are collinear. S is between R and T. RS = 2w + 1, ST = w 1, and RT = 18. Use the information given and your understanding of Geometric Postulates to determine the length of RS. a. 16 b. 5 c. 13 d. 6 none of e. these
- 2. The diagonals of parallelogram ABCD have a common midpoint.



Which of the following is the midpoint of the diagonals of ABCD? d. (4, 0) e. (-1, 0)c. none of a. (-1, 3)b. (4, 3)these

3. In the figure (not drawn to scale), *MO* bisects $\angle LMN$, $m \angle LMO = (19x - 24)^\circ$, and $m \angle NMO = (x + 66)^\circ$. Solve for x and find $m \angle LMN$.



The midpoint of AB is M(4, -2). One endpoint is A(-2, 6). What is the length of AB? 4.

a.	5 units	b.	10 units	c.	20 units	d.	28 units	e.	none of
									these

- 5. Find K, such that the points (-2,2), (2, 6), and (4, K) are collinear.
 - a. 4 d. 18
 - b. 8 e. none of these c. 12
- 6. If \overline{AC} is parallel to \overline{DF} , what is the measure, in degrees, of $\angle ABD$?



- 7. Which best describes the relationship between the line that passes through (5, -7) and (1, -4) and the line that passes through (-4, -8) and (-7, -12)?
 - a. same line
 - b. perpendicular
 - c. parallel
 - d. neither perpendicular nor parallel
- 8. Write the slope-intercept form of the equation of the line passing through the point (5, 5) and perpendicular to the line $y = \frac{4}{9}x 1$.
 - a. $y = -\frac{4}{9}x + \frac{65}{9}$ d.
 - b. none of these

d.
$$y = \frac{9}{4}x - \frac{25}{4}$$

e. $y = -\frac{6}{7}x - \frac{9}{7}$

- c. $y = \frac{4}{9}x \frac{25}{9}$
- 9. In the diagram, $\angle B \cong \angle E$ and $\angle C \cong \angle F$. Find the value of *x*.



a. x = 50 b. x = 25 c. x = 75 d. x = 35 e. not enough information

10. Identify the missing justifications used to find the value of x.

 $m \angle PQR = x - 5, m \angle SQR = x + 7, \text{ and } m \angle PQS = 100.$





$m \angle PQR + m \angle SQR = m \angle PQS$	a
x - 5 + x + 7 = 100	b. Substitution Property
2x + 2 = 100	c. Simplify
2x = 98	d
x = 49	e. Division Property of Equality

- a. Angle Addition Postulate; Subtraction Property of Equality
- b. Protractor Postulate; Addition Property of Equality
- c. Angle Addition Postulate; Division Property of Equality
- d. Protractor Postulate; Subtraction Property of Equality
- 11. Find the measure of the interior angles to the nearest tenth. (Drawing is not to scale.)



- a. 35.5°, 72.0°, 72.5°
- b. 39.5°, 69.0°, 71.5°

- c. 37.0°, 71.0°, 72.0°
- d. 36.4°, 75.1°, 68.5°



12. Which of the following is a condition for the figure below that will prove $l_1 \mid l_2$

13. It is given that $\angle 1 \cong \angle 2$. Which of the following will show that $l \mid m$.



- a. $\angle 1 \cong \angle 2$ is given. From the diagram, $\angle 1$ and $\angle 2$ are corresponding angles. So by the Converse of the Corresponding Angles Postulate, $l \parallel m$.
- b. $\angle 1 \cong \angle 2$ is given. From the diagram, $\angle 1$ and $\angle 2$ are alternate interior angles. So by the Converse of the Alternate Interior Angles Postulate, $l \parallel m$.
- c. By the Converse of the Corresponding Angles Postulate, $\angle 1 \cong \angle 2$. From the diagram, $l \parallel m$.
- d. $\angle 1 \cong \angle 2$ is given. From the diagram, $\angle 1$ and $\angle 2$ are corresponding angles. So by the Corresponding Angles Postulate, $l \parallel m$.

Multiple Response

Identify one or more choices that best complete the statement or answer the question.

14. Check all that apply



d.

e.

- a. m is perpendicular through P to T.
- \overline{FC} is longer than \overline{DF} . \overline{DE} and \overline{PF} are coplanar in \mathcal{T} .
- b. *C*, *D*, *E*, and *F* are coplanar in *T*.
 c. *D*, *P*, and *F* are collinear.
- 15. For the figure shown, which statement is not true?



16. Refer to the figure below.



Given: AB = AD, $m \angle 1 > m \angle 2$. Then, _____. a. BE > ED b. BE < ED c. AE = EC d. BE = ED

Find the value of x. (The figure may not be drawn to scale.)





18. Triangles LMN and NWR are right triangles.



c. 15.6 cm d. 14.4 cm b. 10 cm

19. Consider Triangle ABC, graphed in the coordinate plane.



Find the perimeter of triangle ABC. Round your answer to the nearest whole number.a. 44b. 13c. 64d. 12

20. Determine the type of construction from the following steps.



c. Congruent Segments

- d. Segment Bisector
- e. Perpendicular from a point on the line
- f. Perpendicular from a point not on the
 - line

21. On a map, Main Street intersects Elm Street and forms a right angle. Summer Street intersects both Main Street and Elm Str What shape could best be used to model the area between these streets if all the streets are straight?

- a. Triangle
- b. Square
- c. Rectangle

d. Hexagon

22. ABC has vertices A(0, 10), B(8, 11), and C(6, 3). Which coordinate proof correctly shows that ABC is a scalene triangle?

- a. $AC = \sqrt{(6-0)^2 + (3-10)^2} = \sqrt{85}$ $BC = \sqrt{(6-8)^2 + (3-11)^2} = \sqrt{68}$ $AB = \sqrt{(8-0)^2 + (11-10)^2} = \sqrt{65}$ The sides of the triangle are all of different lengths which means that ΔABC is a scalene triangle. b. $AC = \sqrt{(6-0)^2 + (3-10)^2} = \sqrt{85}$ $BC = \sqrt{(6-8)^2 + (3-11)^2} = \sqrt{68}$ $AB = \sqrt{(8-0)^2 + (11-10)^2} = \sqrt{65}$ The sides of the triangle are all of different lengths which means that ΔABC is an isosceles triangle.
- c. $AC = \sqrt{(6-0)^2 + (3-10)^2} = \sqrt{85}$ $BC = \sqrt{(6-8)^2 + (3-11)^2} = \sqrt{68}$

AC and BC are not equal, which means that $\triangle ABC$ is a scalene triangle.

d. $AC = \sqrt{(6-0)^2 + (3-10)^2} = \sqrt{85}$ $AB = \sqrt{(8-0)^2 + (11-10)^2} = \sqrt{65}$ AC and AB are not equal, which means that $\triangle ABC$ is a scalene triangle.

23. \overline{JK} in the coordinate plane has endpoints with coordinates (-4,11) and (8, -1). Find all possible locations for point M so M divides \overline{JK} into two parts with lengths in a ratio of 1:3.

a. (-1,8) b. (2,5) c. (5,2) d. (8,-1) e. (-4,11)

24. Which of the following can be concluded given that ABC and CBD are a linear pair?

- a. $\angle ABC$ and $\angle CBD$ are supplementary.
- b. $\angle ABC$ and $\angle CBD$ are complementary.
- c. \overrightarrow{BA} and \overrightarrow{BD} are opposite rays.
- d. $\angle ABC$ and $\angle CBD$ are adjacent angles.
- e. ∠ABC ∠CBD