GEOMETRY B
MIDTERM REVIEW PACKET

DATE OF MIDTERM: __________________________

TIME: __________

WHAT TO BRING TO THE EXAM:

✓ #2 pencil
✓ Calculator
For points A through E, plot and label the points on the coordinate plane and then state the quadrant each point is located in. If the point does not live in a quadrant, state where it falls.

**LOCATION**

A (-3, 1) ________________
B (-4, 5) ________________
C (3, 2) ________________
D (0, 4) ________________
E (0, 0) ________________

Fill in the blank with the correct word.

*Points* that live on the *same line* are ________________.

*Lines* that live on the *same plane* are ____________________.

*Two lines* intersect at a ________________.

A __________________ contains an infinite number of points and goes on forever in two directions.

A __________________ is formed by connecting two endpoints.

**Draw a picture for each:**

<table>
<thead>
<tr>
<th>RAY</th>
<th>LINE</th>
<th>LINE SEGMENT</th>
<th>POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
Show 4 different ways to NAME this angle:

1.  
2.  
3.  
4.  

Use the picture below to answer questions 5-8.

5. Is \( \overline{CD} \equiv \overline{EF} \)? Why?  
6. Find \( AD \)

7. Find \( AC \)  
8. What is the midpoint of \( \overline{CD} \)?

Draw a picture to represent the following:

9. \( k \) contains A and K  
10. J, K, and L are collinear  
11. \( f \) and \( \overline{RT} \) intersect at B
Use the distance formula found on your formula sheet to find the following lengths:

12. Find AB if A (2, 1) and B (8, 2)  
13. Find HI if H(-3, 1) and I (3, -5)

14. Find AB if A(-32) and B(108)  
15. Find HI if H(44) and I (-322)

Use the picture to answer the following

16. State another name for \(\angle 1\): __________

17. Name the vertex of \(\angle EBD\): __________

18. Name the two rays that are the sides of \(\angle 3\): _______ and _______

19. Name a pair of supplementary angles: __________ and __________

20. Name a pair of complementary angles: __________ and __________

21. Name a pair of opposite rays: ____________ and ______________

22. The \(m\angle ABE + m\angle EBD + m\angle DBC = \) ______

23. Angles 1 and 2 are _________________ to each other.

24. \(\angle ABD\) and \(\angle DBC\) form a _________________ pair.
In the picture \(XP\) and \(XT\) are opposite rays. Given the following information find the value of \(x\) and then find the missing angle measurements!!

25. \(m\angle QXS = 2x - 2\)
   \(m\angle QXT = 125\)

26. \(m\angle PXR = 3x\)
   \(m\angle RXT = 5x + 20\)

27. \(m\angle XKP = 5x + 2\)
   \(m\angle PKQ = 3x + 4\)
   \(m\angle XKQ = 150\)
Geometry B: Midterm Review Packet

Draw an accurate picture to show the following:

28. \( \angle 2 \) and \( \angle 3 \) are ADJACENT
29. \( \angle 6 \) and \( \angle 7 \) are SUPPLEMENTARY
    but NOT ADJACENT

30. \( \angle ABC \) and \( \angle CBD \) form a linear pair
31. \( \angle 4 \) and \( \angle 9 \) are complementary

32. \( \angle 10 \) and \( \angle 11 \) are congruent
33. \( \angle 2 \) and \( \angle 3 \) are vertical angles

Solve for x and then find the missing measurements.

34. \( m \angle LAR = 8x + 12 \)
    \( m \angle RAK = 5x + 42 \), \( \overline{AR} \) is an angle bisector
35. \( CA = 12x - 5 \)
    \( AT = 8x + 31 \)

36. \( m \angle DUS = 16x - 3 \)
    \( m \angle SUR = 4x + 18 \)
    \( m \angle DUR = 115^\circ \)
Fill in the blank:

37. Two angles that are “next to” each other and share a common ray are ________________.

38. The word used to describe lines that are not parallel and are non-coplanar is ________________.

39. Two angles are ________________ if they have the same exact measure.

40. Two parallel lines have ________________ slopes.

41. Two lines that are perpendicular have ________________ slopes.

42. This symbol means that two lines are perpendicular: ________

43. This symbol means that two lines are parallel: ________

44. Two angles that add up to 90° are ________________ angles.

45. Two angles that add up to 180° are ________________ angles.

46. Two angles are ________________ if and only if their sides form two pairs of opposite rays.

47. A ________________ is a line that intersects two or more other lines.

Use the provided picture to answer the following:

48. Name a pair of parallel segments: _______ & _______

49. Name a pair of perpendicular segments: _______ & _______

50. Name a pair of segments that are skew: _______ & _______
For questions 51→ 56 choose the correct answer: Alternating Interior Angles, Corresponding Angles, Same Side Interior Angles, Alternate Exterior Angles, Linear Pair, or Vertical Angles

51. \( \angle 1 \) & \( \angle 8 \) are _________________________________.

52. \( \angle 6 \) & \( \angle 2 \) are _________________________________.

53. \( \angle 5 \) & \( \angle 8 \) are _________________________________.

54. \( \angle 2 \) & \( \angle 7 \) are _________________________________.

55. \( \angle 2 \) & \( \angle 5 \) are _________________________________.

56. \( \angle 6 \) & \( \angle 8 \) are _________________________________.

Find the complement and supplement of the given angles:

57.

a) \( m\angle V = 70^\circ \)  
b) \( m\angle J = 115^\circ \)  
c) \( m\angle R = 42^\circ \)

comp: _____  
comp: _____  
comp: _____

supp: _____  
supp: _____  
supp: _____
Solve for $x$.

58. $2x + 45 = 3x - 8$

59. $6x - 23 = 4x + 41$

60. $2x + 45 = 3x - 8$

61. $2x = 3x + 5$

62. $5x + 8 = 3x + 20$

63. $12x + 20 = 8x + 40$
64. Solve for x!!

65. Find x, y, and z if l, m, and n are parallel to each other:

66. Find x, y, and z if l, m, and n are parallel to each other:
Geometry B: Midterm Review Packet

For questions 67 → 71:

Given the points A(-3, 10) and B(6, 14) find: (LOOK at your FORMULA SHEET!)

67. Find the midpoint of the segment A to B:

68. The slope of the line that contains connecting A and B:

69. What is the equation of the line that connects A to B?

70. Write a line parallel to $AB$

71. Write a line perpendicular to $AB$

Classify the following triangles by SIDES (Equilateral, Isosceles, or Scalene) and ANGLES (Acute, Obtuse, Right, or Equiangular).

72.

73.

74.

75.
Fill in the blank with the correct answer:

76. A triangle with congruent angles and sides is both ________________
and _________________.

77. A triangle with NO CONGRUENT sides is called _________________.

78. A triangle with only TWO CONGRUENT sides is called _________________.

79. A triangle with one angle that measures 122° is considered _________________.

80. A triangle with \( \angle P = 50° \) and \( \angle Q = 60° \) must be _________________.

81. Label all parts of the ISOSCELES triangle

If \( ED=DF \)

82. Label all parts of the RIGHT triangle

If \( ED=DF \)

83. The measure of the vertex angle of an isosceles triangle is 110°. What is the measure of one of the base angles?

84. The measure of a base angle of an isosceles triangle is 20°. What is the measure of the vertex?
Draw and label the following lines and segments. Make sure to use arc marks and tic marks when necessary.

85. Draw the MEDIAN that passes through $\overline{BC}$

86. Draw the ANGLE BISECTOR of $\angle B$

87. Draw the PERPENDICULAR BISECTOR of $\overline{CA}$

88. Draw an ALTITUDE that is special for the following triangles:
89. List 4 ways to prove ANY TWO triangles CONGRUENT:

1. 
2. 
3. 
4. 

90. List 2 ways that will NOT prove two triangles are congruent.

1. 
2. 

Determine if the following triangles are CONGRUENT by using one of your answers from question 89. If they are not congruent write, “ARE NOT CONGRUENT”.

91. 
method:________________

92. 
method:________________

93. 
method:________________
94. State the 4 ways to prove any two RIGHT TRIANGLES congruent:

1. 
2. 
3. 
4. 

Determine if the following RIGHT TRIANGLES are congruent. If they are state one of the methods from question 94.

95. method:_______________

96. method:_______________

Solve for x.

97. 
98. 

99. 
\[ m \angle VXW = 90^\circ \]
\[ m \angle W = 2x - 3 \]
\[ m \angle V = 3x + 8 \]
Solve for $x$.

100. 

101. 

102. Name the polygon with the given number of sides:

<table>
<thead>
<tr>
<th>Number of sides</th>
<th>Name</th>
<th>Number of sides</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>_______</td>
<td>8</td>
<td>_______</td>
</tr>
<tr>
<td>4</td>
<td>_______</td>
<td>9</td>
<td>_______</td>
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<tr>
<td>5</td>
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<td>10</td>
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<td>6</td>
<td>_______</td>
<td>12</td>
<td>_______</td>
</tr>
<tr>
<td>7</td>
<td>_______</td>
<td>20</td>
<td>_______</td>
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103→107: Fill in the blank

103. In a _____________ (rectangle / rhombus) the diagonals are congruent.

104. The diagonals are perpendicular in a _____________ (rectangle/ rhombus).

105. Opposite angles are congruent in all _____________ (polygons/parallelograms).

106. Consecutive angles are _____________ (congruent/ supplementary) in a parallelogram.

107. A ____________ (square/ rectangle) is always a rhombus.
Questions 108→114:

**RECTANGLE ABCD**

108. Find x:

\[
\angle ADC = 40x + 10 \\
\angle DAB = 15x + 35
\]

**RHOMBUS RSTU**

109. Find \( m \angle URS \):

\[
\angle URS = 2x + 10 \\
\angle RUT = 10x + 14
\]

**PARALLELOGRAM WUVM**

110. Find EM:

\[
\overline{WM} = 22x - 32 \\
\overline{WE} = 3x + 8
\]
111. S A The shape to the right is a square,

\[ \triangle SMAC = 15x - 30 \]

Find \( x \)

112. Given that ABCD is a parallelogram, how long is AB?

A \[ \text{3x + 9} \]

B \[ \text{8x - 41} \]

D \[ \text{8x - 41} \]

113. Given that PQRS is a rectangle and \( PR = 8x - 10 \) and \( SQ = 2x + 38 \), find the length of PR.

P Q R S

114. Given that KLMN is a rhombus, \( KR = 5 \) and \( RL = 12 \), find KL:

K L R M N
Geometry B: Midterm Review Packet

Find the missing side length. Use your formula sheet for reference!! ALL OF THE FOLLOWING TRIANGLES ARE RIGHT TRIANGLES!!!

115. \[ \begin{align*} \triangle &: \ 8 \quad \ x \quad 6 \\ \text{side length} &:\ x \end{align*} \]

116. \[ \begin{align*} \triangle &: \ 5 \quad \ x \quad 7 \\ \text{side length} &:\ x \end{align*} \]

117. \[ \begin{align*} \triangle &: \ 20 \quad 16 \quad x \\ \text{side length} &:\ x \end{align*} \]

118. \[ \begin{align*} \triangle &: \ 5\sqrt{2} \quad 45^\circ \quad x \\ \text{side length} &:\ x \end{align*} \]

119. \[ \begin{align*} \triangle &: \ 8 \quad y \quad x \\ \text{side length} &:\ x \end{align*} \]

120. \[ \begin{align*} \triangle &: \ 7 \quad y \quad x \quad 30^\circ \\ \text{side length} &:\ x \end{align*} \]

BEST OF LUCK ON THE MIDTERM!! ☺