

Honors Geometry Midterm Questions (Ch. 1-6)

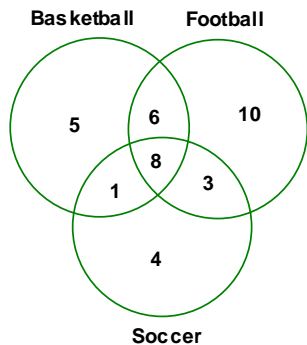
Name _____

- _____1. What is the midpoint of a line that has endpoints at (0, 3) and (6, -1)?
A. (12, 2) B. (3, 1) C. (12, -5) D. (3, 2)
- _____2. If X is the midpoint of \overline{CN} and $CX = 2n - 10$, what is CN?
A. $n - 5$ B. $4n - 20$ C. $4n$ D. 40
- _____3. If C is between X and Y with $CX = 8n - 4$ and $CY = 2n + 10$, what is XY?
A. $6n - 6$ B. $6n - 14$ C. $10n + 6$ D. $10n - 6$
- _____4. What is the midpoint of a line that has endpoints at (-2, -3) and (8, -1)?
A. (6, -4) B. (6, -2) C. (3, -2) D. (-6, -4)
- _____5. If B is the midpoint of \overline{AC} and $AC = 8n - 2$, what is AB?
A. $4n - 1$ B. $16n - 4$ C. $4n - 2$ D. $16n + 4$
- _____6. If C is between X and Y with $XY = 6n - 4$ and $CY = n + 1$, what is CX?
A. $5n - 3$ B. $5n - 5$ C. $7n - 3$ D. $7n - 5$
- _____7. What are the measures of two complementary angles if the difference of their measures is 8° ?
A. 39, 51 B. 76, 84 C. 86, 94 D. 41, 49
- _____8. What are the measures of two supplementary angles if the difference of their measures is 8° ?
A. 39, 51 B. 76, 84 C. 86, 94 D. 41, 49
- _____9. If $\angle A$ and $\angle B$ are complementary angles with $\angle A = 80^\circ$, what is $\angle B$?
A. 10° B. 20° C. 100° D. 120°
- _____10. If $\angle A$ and $\angle B$ are supplementary angles with $\angle A = 80^\circ$, what is $\angle B$?
A. 10° B. 20° C. 100° D. 120°
- _____11. A is at (-1, 2) and B is at (3, 8). What are the coordinates of the midpoint of \overline{AB} ?
A. (1, 4) B. (1, 5) C. (2, 5) D. (2, 4)
- _____12. If the radius of a circle is 20 cm, what is the circumference? (Ignore units)
A. 20π B. 40π C. 80π D. 400π
- _____13. What is the area of a circle with a radius of 6 cm? (Ignore units)
A. 6π B. 12π C. 18π D. 36π
- _____14. What is the perimeter of a square with an area of 25 cm^2 ?
A. 20 cm B. 25 cm C. 50 cm D. 625 cm
- _____15. \overline{BX} bisects $\angle ABC$. If $\angle ABX = 30^\circ$, what is $\angle ABC$?
A. 15° B. 30° C. 60° D. 120°

- _____16. Which of these statements is false?
 A. $\overline{AB} = \overline{BA}$ B. $\overline{AB} = \overline{BA}$ C. $\overline{AB} = \overline{BA}$ D. All are true.
- _____17. Which description best describes a stop sign?
 A. a regular convex octagon B. an irregular concave octagon
 C. a regular concave octagon D. an irregular convex octagon
- _____18. Which equation would be perpendicular to the $y = -\frac{1}{7}x + 3$?
 A. $y = -\frac{1}{7}x - 3$ B. $y = \frac{1}{7}x + 3$ C. $y = 7x - 5$ D. None of the above
- _____19. If you walk 12 miles due East and then 16 miles due South, how far are you from your starting point?
 A. 20 miles B. 24 miles C. 28 miles D. 36 miles
- _____20. If you walk 35 miles due North and then 48 miles due West, rounded to the nearest mile how far are you from your starting point?
 A. 13 miles B. 33 miles C. 59 miles D. 61 miles
- _____21. If the diagonal distance of a rectangle is 97 cm and one of the sides is 65 cm, what is the other side length?
 A. 71 cm B. 72 cm C. 117 cm D. 118 cm
- _____22. How many planes does a dice have?
 A. 6 B. 4 C. 0 D. 8
- _____23. If three points all lie on a line, the points are said to be what?
 A. segment bisectors B. coplanar
 C. derivatives D. collinear
- _____24. If $\angle A$ and $\angle B$ are vertical angles with $\angle A = 2n + 60$ and $\angle B = 4n + 20$, what is the measurement of $\angle B$?
 A. 10 B. 20 C. 80 D. 100
- _____25. If $\angle A$ and $\angle B$ are a linear pair with $\angle A = n + 40$ and $\angle B = 9n + 20$, what is the measurement of $\angle A$?
 A. 22 B. 12 C. 52 D. 42
- _____26. If $\angle A$ and $\angle B$ are vertical angles with $\angle A = n + 60$ and $\angle B = 2n + 10$, what is the measurement of $\angle A$?
 A. 110 B. 80 C. 20 D. None of the above
- _____27. If two angles are vertical angles, the sum of their measures is 180 degrees.
 A. True B. False
- _____28. Complementary angles add up to 180 degrees.
 A. True B. False

- _____42. If $AB = 6$ and $AB + BC = 10$, then $6 + BC = 10$ demonstrates what property?
 A. Subtraction B. Addition C. Substitution D. Symmetric
- _____43. If $AB - NP = BC - NP$, then $AB = BC$ demonstrates what property?
 A. Subtraction B. Addition C. Substitution D. Symmetric
- _____44. If $\angle 1 + \angle 2 = 90$ and $\angle 2 = \angle 5 + \angle 6$, then $\angle 1 + \angle 5 + \angle 6 = 90$.
 A. Substitution B. Addition C. Symmetric D. Calcitration
- _____45. If $AB + BC = XY + BC$, then $AB = XY$ demonstrates what property?
 A. Subtraction B. Addition C. Substitution D. Symmetric

Consider this Venn diagram.



- _____46. According to the Venn diagram, how many are on the soccer team?
 A. 11 B. 16 C. 4 D. 9
- _____47. According to the Venn diagram, how many are playing all 3 sports at the same time?
 A. 1 B. 8 C. 18 D. 20
- _____48. According to the Venn diagram, how many play football and basketball at the same time?
 A. 9 B. 8 C. 33 D. 14
- _____49. In my class, everyone plays either golf or tennis. 14 play golf and 8 play tennis. If 3 play both tennis and golf, how many kids are in my class?
 A. 17 B. 19 C. 22 D. 25
- _____50. I have a total of 14 kids. If 10 of my kids play soccer and 12 play tennis, how many play both tennis and soccer?
 A. 2 B. 4 C. 8 D. 10
- _____51. There are 30 kids who play either soccer or baseball. 4 of the 30 kids play both soccer and baseball. If the soccer team has 18 members, how many kids are on the baseball team?
 A. 12 B. 16 C. 20 D. 26
- _____52. There are 14 kids in band and 16 in chorus. If 4 of these kids are in both chorus and band, how many total kids are in either band or chorus?
 A. 26 B. 28 C. 30 D. 34

Figure 1

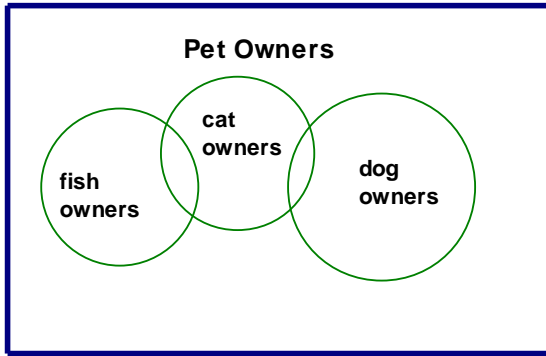
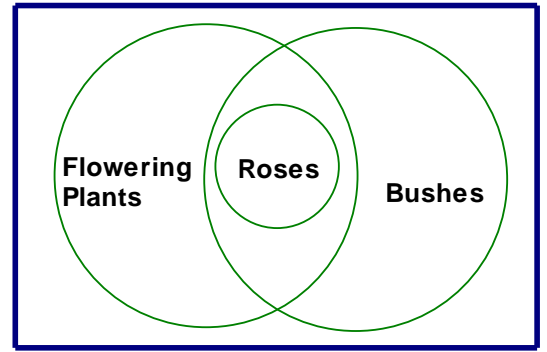
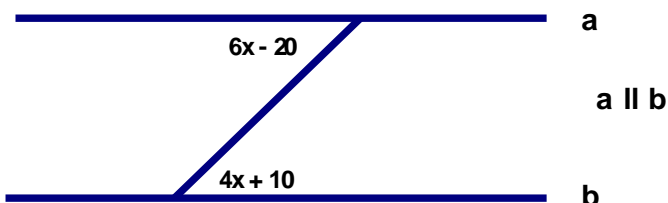


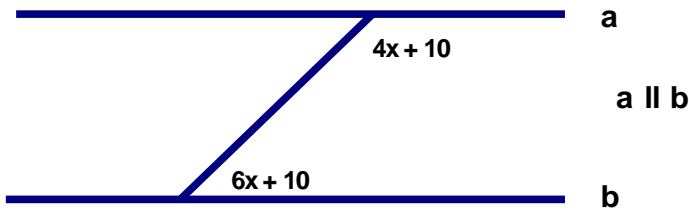
Figure 2



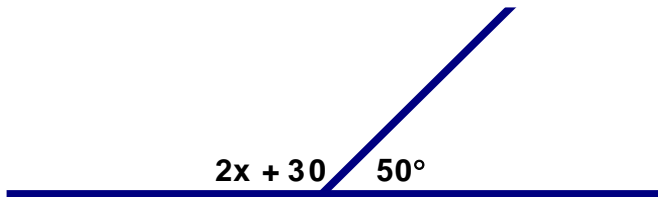
- ___53. In Figure 1 above, which is a valid conclusion?
 A. No cat owners also own dogs.
 B. No fish owners also own cats.
 C. No dog owners also own fish.
 D. No pet owner owns more than one pet.
- ___54. In Figure 2 above, which statement is true?
 A. No bushes are flowering plants.
 B. No roses are bushes.
 C. Some flowering plants are bushes.
 D. Some roses are not flowering plants.
- ___55. If lines are parallel, then alternate interior angles are equal.
 A. True B. False
- ___56. If lines are parallel, then corresponding angles add up to 180°.
 A. True B. False
- ___57. Vertical angles are equal.
 A. True B. False
- ___58. If lines are parallel, consecutive interior angles are equal.
 A. True B. False
- ___59. The sum of the angles in a triangle is 360°.
 A. True B. False
- ___60. What is the value of x in the figure below?
 A. 15° B. 16° C. 19° D. 21°



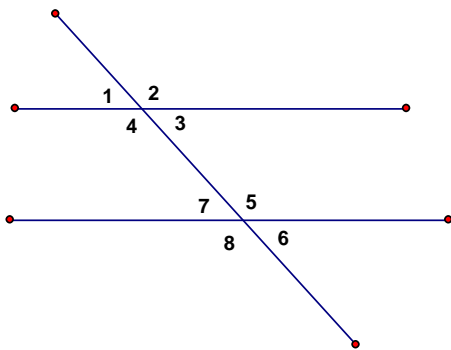
- ____ 61. What is the value of x in the figure below?
 A. 15° B. 16° C. 19° D. 0°



- ____ 62. What is the value of x in the figure below?
 A. 10° B. 15° C. 50° D. 60°



Look at the figure below and identify the given.



- ____ 63. the alternate interior angle to angle $\angle 7$
 A. $\angle 1$ B. $\angle 3$ C. $\angle 4$ D. $\angle 5$
- ____ 64. the corresponding angle to angle $\angle 2$
 A. $\angle 1$ B. $\angle 3$ C. $\angle 4$ D. $\angle 5$
- ____ 65. the consecutive interior angle to $\angle 5$
 A. $\angle 1$ B. $\angle 3$ C. $\angle 4$ D. $\angle 7$
- ____ 66. In $\triangle ABC$, $\angle A = 3n$, $\angle B = 5n - 30$, $\angle C = 2n + 10$. What is the measurement of $\angle A$?
 A. 20° B. 40° C. 60° D. 80°
- ____ 67. Give the equation in slope intercept form that goes through $(2, 7)$ and has a slope of 4.
 A. $y = 4x - 26$ B. $y = 4x + 1$ C. $y = -4x + 15$ D. $y = 4x - 1$
- ____ 68. What would be the slope of the line that is perpendicular to $y = 5x + 4$?
 A. 5 B. -5 C. $\frac{1}{5}$ D. $-\frac{1}{5}$

- _____69. Give the equation in slope intercept form that goes through (2, 4) and is parallel to the line $y = 5x - 3$.
- A. $y = 5x + 3$ B. $y = -5x + 12$ C. $y = -\frac{1}{5}x + 12$ D. $y = 5x - 6$
- _____70. Give the equation in slope intercept form that goes through (3, 4) and (5, 10).
- A. $y = 3x - 4$ B. $y = -3x + 13$ C. $y = 3x - 5$ D. $y = \frac{1}{3}x + 3$
- _____71. In $\triangle ABC$, $\angle A = 3n$, $\angle B = 5n - 30$, $\angle C = 2n + 10$. What is the measurement of $\angle A$?
- A. 20° B. 40° C. 60° D. 80°
- _____72. If $\triangle ABC$ is an isosceles triangle with $AB = BC$, which statement must be true?
- A. $\angle C = \angle B$ B. $\angle A = \angle B$ C. $\angle A = \angle C$ D. $AC = BC$
- _____73. In $\triangle CWH$ which angle is opposite \overline{CH} ?
- A. $\angle C$ B. $\angle P$ C. $\angle H$ D. $\angle W$
- _____74. If in $\triangle CWH$, $CW = WH$ and $WH = CH$, what is the measurement of $\angle W$?
- A. 40° B. 60° C. 80° D. Not possible to know
- _____75. If $\triangle ABC \cong \triangle XYZ$, which of the following must be true?
- A. $\angle A = \angle Z$ B. $AC = XY$ C. $XZ = BC$ D. None of the above
- _____76. If $\triangle ABC$ is an isosceles triangle with $AC = BC$ and $\angle A = 40^\circ$, what is $\angle B$?
- A. 40° B. 70° C. 80° D. None of the above
- _____77. If $\triangle ABC \cong \triangle XYZ$, $AB = 38$, $YZ = 28$, and $XY = 5x + 8$, what is the value of x ?
- A. 30 B. 20 C. 6 D. 4
- _____78. If $\triangle RST \cong \triangle HIJ$, $\angle R = 97^\circ$, $\angle J = 37^\circ$, and $\angle S = 4x + 14$, what is the value of x ?
- A. 10 B. 32 C. 46 D. 8
- _____79. Which of the following does not prove congruency?
- A. ASA B. SSA C. SSS D. All prove congruency
- _____80. If in $\triangle CWH$, $\angle W = \angle H$ what can you conclude?
- A. $CW = WH$ B. $CH = CW$ C. $CH = WH$ D. $\angle C = 100^\circ$

Figure 1

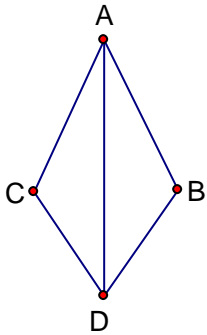


Figure 2

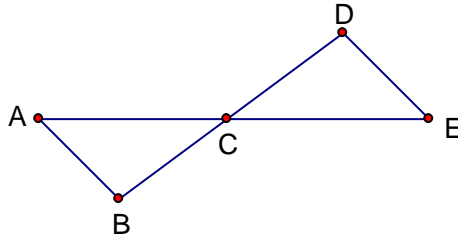


Figure 3

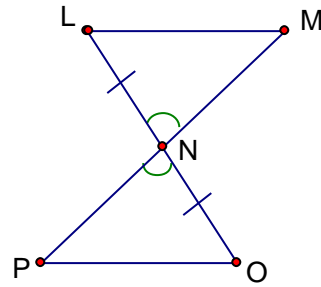


Figure 4

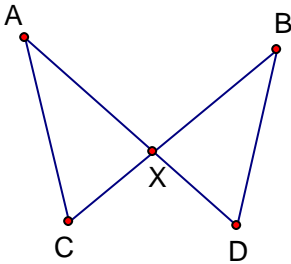


Figure 5

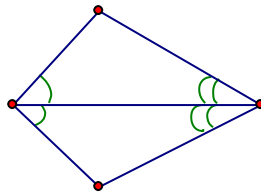
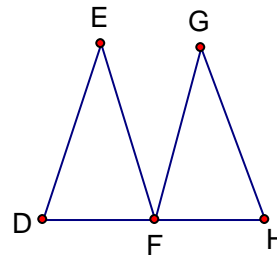
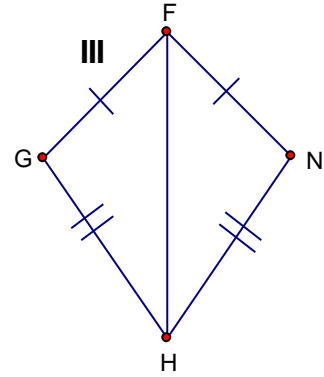
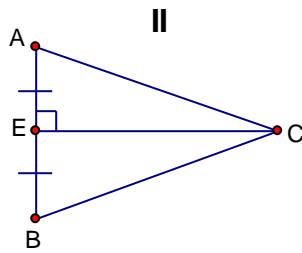
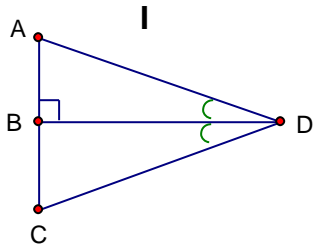


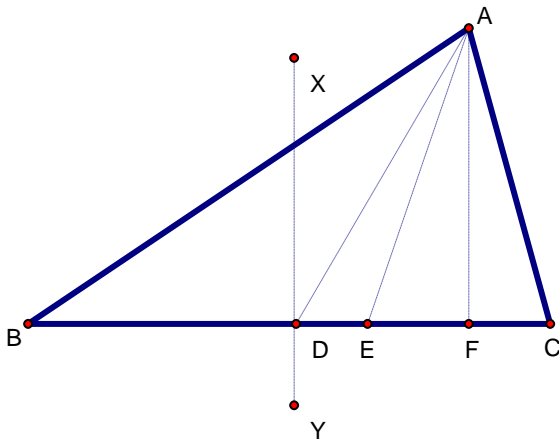
Figure 6



- ____ 81. In figure 1 above, what postulate would be used to prove that $\triangle ABD \cong \triangle ACD$ if $\overline{AC} \cong \overline{AB}$ and $\overline{CD} \cong \overline{BD}$?
- A. ASA B. SAS C. SSS D. AAS
- ____ 82. In figure 2 above, \overline{AE} and \overline{BD} bisect each other at point C. What postulate would be used to prove that $\triangle ABC \cong \triangle EDC$?
- A. ASA B. SAS C. SSS D. AAS
- ____ 83. In figure 3 above, what additional information is needed to prove that $\triangle MNL$ is congruent to $\triangle PNO$ by SAS?
- A. $PN = MN$ B. $PO = LM$ C. $PO = NM$ D. $NM = NO$
- ____ 84. In figure 4 above, $AX = BX$ and $CX = DX$. What postulate would be used to prove that $\triangle AXC \cong \triangle BXD$?
- A. ASA B. SAS C. SSS D. AAS
- ____ 85. In figure 5 above, what postulate would be used to prove that the triangles are congruent?
- A. ASA B. SAS C. SSS D. AAS
- ____ 86. In figure 6 above, which statement below does **NOT** necessarily describe the triangles shown if $\triangle DEF \cong \triangle GFH$?
- A. $\triangle EDF \cong \triangle GFH$ C. $\triangle EFD \cong \triangle GHF$
 B. $\triangle FED \cong \triangle HGF$ D. $\triangle FDE \cong \triangle FHG$



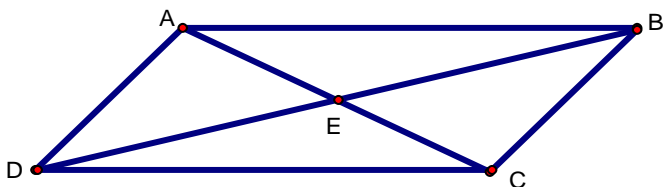
- ___ 87. In picture I above, what allows you to immediately conclude that $\triangle ABD \cong \triangle CBD$?
 A. ASA B. SAS C. AAA D. SAA
- ___ 88. In picture II above, what allows you to immediately conclude that $\triangle AEC \cong \triangle BEC$?
 A. ASA B. SAS C. AAA D. SAA
- ___ 89. In picture III above, what allows you to immediately conclude that $\triangle FGH \cong \triangle FNH$?
 A. SSS B. SAS C. AAA D. SAA
- ___ 90. What does the symbol \cong mean?
 A. similar B. equal to C. congruent D. approximately



In the figure above, $BD = CD$, $\angle XDC = \angle AFC = 90^\circ$, and $\angle BAE = \angle CAE$.

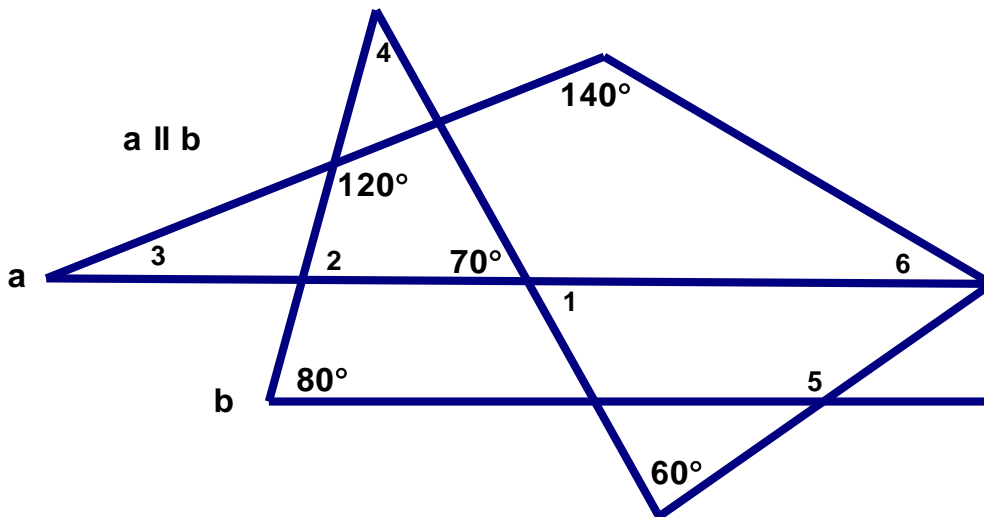
- ___ 91. What is \overline{AD} in the triangle above?
 A. median B. perpendicular bisector C. altitude D. angle bisector
- ___ 92. What is \overline{AE} in the triangle above?
 A. median B. perpendicular bisector C. altitude D. angle bisector
- ___ 93. What is \overline{XD} in the triangle above?
 A. median B. perpendicular bisector C. altitude D. angle bisector
- ___ 94. What is \overline{AF} in the triangle above?
 A. median B. perpendicular bisector C. altitude D. angle bisector

- ____ 106. In $\triangle ABC$, $\angle A = 59^\circ$, $\angle B = 60^\circ$, and $\angle C = 61^\circ$. What side is longest?
 A. \overline{AB} B. \overline{AC} C. \overline{CB} D. $\angle C$
- ____ 107. In $\triangle ABC$, $AB = 13$ cm, $BC = 12$ cm, and $AC = 16$ cm. What angle is smallest?
 A. $\angle A$ B. $\angle B$ C. $\angle C$ D. None of the above
- ____ 108. Which below is a possible measurement for an isosceles triangle?
 A. 4, 4, 8 B. 7, 7, 13 C. 2, 2, 5 D. 1, 1, 2
- ____ 109. If $\triangle ABC \cong \triangle XYZ$, $\angle A = 40^\circ$, $\angle C = 80^\circ$, what is the measurement of $\angle X$?
 A. 40° B. 70° C. 80° D. 60°
- ____ 110. If ABCD is a parallelogram with $\angle A = 7x$ and $\angle B = 3x - 20$, what is the measurement of $\angle C$?
 A. 20° B. 40° C. 80° D. 140°
- ____ 111. If ABCD is an isosceles trapezoid with $\angle A = 50^\circ$, what is $\angle C$?
 A. 50° B. 100° C. 130° D. 140°
- ____ 112. Which of the following is not always true about a parallelogram?
 A. the diagonals bisect each other B. opposite sides are equal in length
 C. opposite angles are equal D. diagonals are perpendicular
- ____ 113. Opposite angles are not always congruent in a
 A. rhombus B. parallelogram C. trapezoid D. rectangle
- ____ 114. \overline{NO} is the base of isosceles trapezoid NRPO. If $\angle N = 4x + 10$ and $\angle O = 6x + 4$, what is the value of x ?
 A. 2 B. 3 C. 16.6 D. 18.2
- ____ 115. If ABCD is an isosceles trapezoid with $AB = CD$, $\angle B$ is congruent to
 A. $\angle A$ B. $\angle C$ C. $\angle D$ D. $\angle X$
- ____ 116. Diagonals are always perpendicular in a
 A. parallelogram B. trapezoid C. rhombus D. rectangle

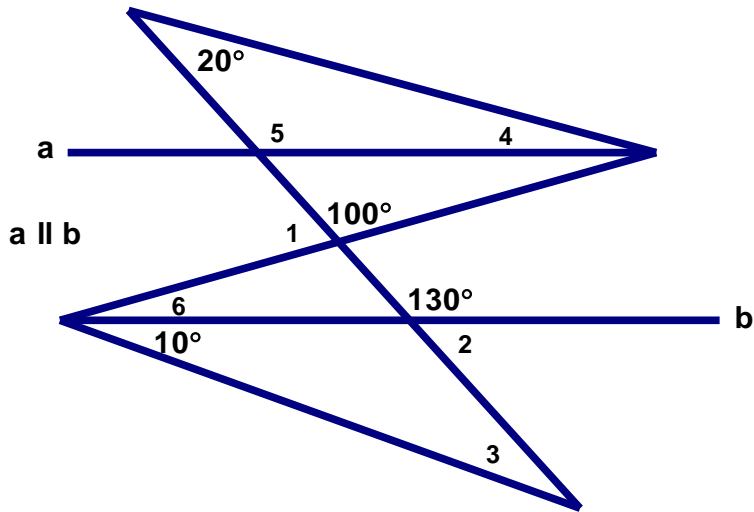


- ____ 117. If $AE = 4n - 8$, $DE = 2n + 6$, and $CE = n + 4$ in the parallelogram above, what is the value of n ?
 A. -2 B. 2 C. 4 D. 7
- ____ 118. If $\angle ADC = 80^\circ$ in the parallelogram above, what is $\angle DCB$?
 A. 40° B. 80° C. 100° D. 120°

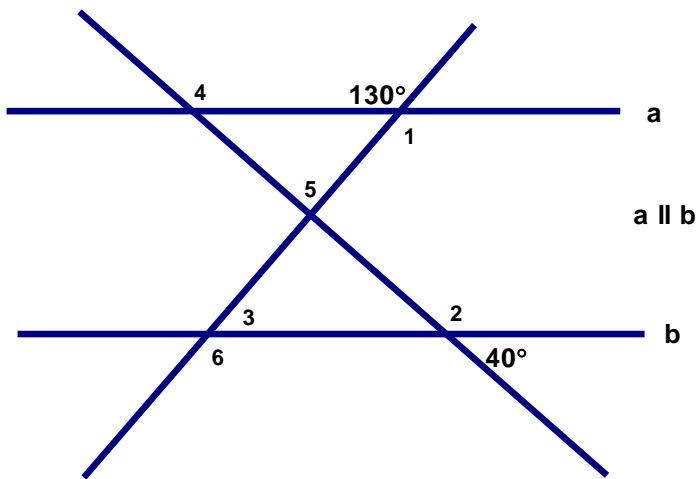
- _____119. If in the parallelogram above $DC = 3n + 20$, $BC = n + 10$, and $AB = 4n - 10$, what is n ?
- A. -5 B. $6\frac{2}{3}$ C. 30 D. None of the above
- _____120. What of the following could be a fourth point in a parallelogram if three of the points are $(0, 0)$, $(6, 0)$ and $(3, 4)$?
- A. $(9, 4)$ B. $(6, 4)$ C. $(4, 6)$ D. $(4, 9)$
- _____121. Which is the equation that has a slope of 2 and goes through the point $(1, 9)$.
- A. $y = 2x + 7$ B. $y = 2x - 9$ C. $y = 2x + 9$ D. $y = 2x - 1$
- _____122. Which equation below is perpendicular to $y = \frac{1}{2}x - 7$?
- A. $y = 2x + 7$ B. $y = -2x - 1$ C. $y = \frac{1}{2}x + 7$ D. $y = x + 1$
- _____123. Let p and q be p : $\angle A$ is acute q : $\angle B$ is acute
What would represent " $\angle A$ is acute or $\angle B$ is acute"?
- A. $p \wedge q$ B. $p \vee q$ C. $p \leftrightarrow q$ D. $p \rightarrow q$
- _____124. Assume the following: p : $\angle A$ is acute q : $\angle B$ is acute n : $\angle C$ is obtuse
What would represent " $\angle C$ is obtuse, then $\angle A$ is acute and $\angle B$ is acute."?
- A. $n \rightarrow p \wedge q$ B. $n \rightarrow p \vee q$ C. $p \rightarrow n \wedge q$ D. $p \rightarrow n \vee q$



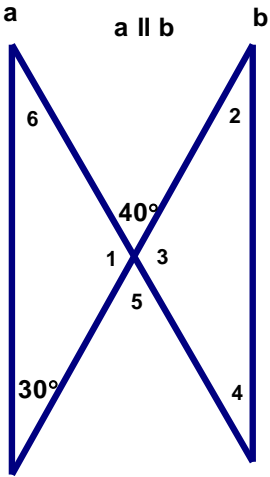
- _____125. What is the measurement of $\angle 1$ above?
- A. 20° B. 30° C. 70° D. 80°
- _____126. What is the measurement of $\angle 3$ above?
- A. 20° B. 30° C. 70° D. 80°
- _____127. What is the measurement of $\angle 6$ above?
- A. 20° B. 30° C. 70° D. 80°



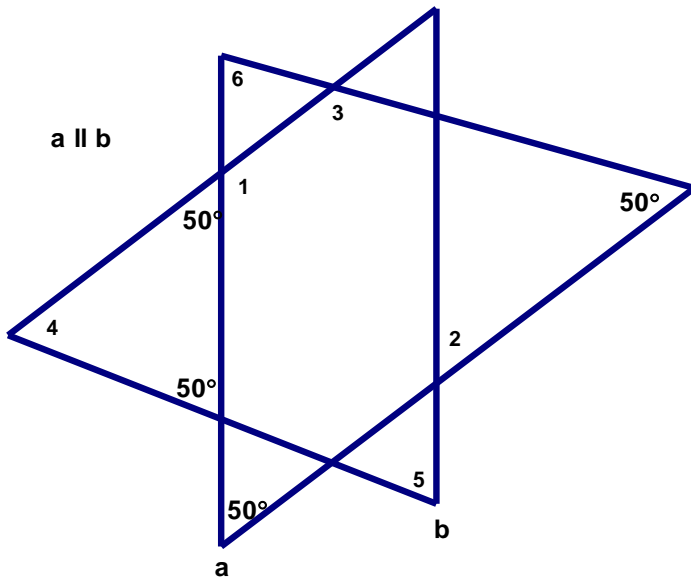
- ____ 128. What is the measurement of $\angle 1$ above?
 A. 80° B. 30° C. 40° D. 50°
- ____ 129. What is the measurement of $\angle 3$ above?
 A. 80° B. 30° C. 40° D. 80°
- ____ 130. What is the measurement of $\angle 6$ above?
 A. 80° B. 30° C. 40° D. 80°



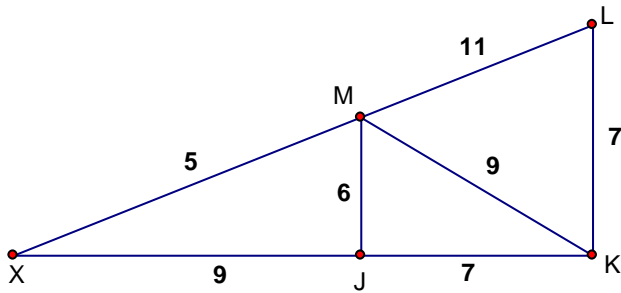
- ____ 131. What is the measurement of $\angle 2$ above?
 A. 140° B. 130° C. 90° D. 50°
- ____ 132. What is the measurement of $\angle 3$ above?
 A. 80° B. 30° C. 40° D. 50°
- ____ 133. What is the measurement of $\angle 5$ above?
 A. 80° B. 90° C. 100° D. 70°



- ____ 134. What is the measurement of $\angle 1$ above?
 A. 140° B. 40° C. 30° D. 10°
- ____ 135. What is the measurement of $\angle 4$ above?
 A. 140° B. 40° C. 30° D. 10°
- ____ 136. What is the measurement of $\angle 6$ above?
 A. 140° B. 40° C. 30° D. 10°



- ____ 137. What is the measurement of $\angle 4$ above?
 A. 80° B. 130° C. 40° D. 50°
- ____ 138. What is the measurement of $\angle 2$ above?
 A. 80° B. 130° C. 40° D. 50°
- ____ 139. What is the measurement of $\angle 6$ above?
 A. 80° B. 130° C. 40° D. 50°

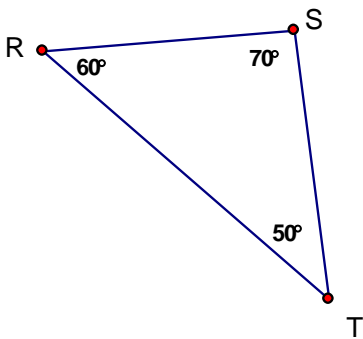


- _____140. When comparing $\angle JMK$ and $\angle MJX$ above, what is true?
 A. $\angle JMK > \angle MJX$ B. $\angle JMK < \angle MJX$
 C. $\angle JMK = \angle MJX$ D. It cannot be determined

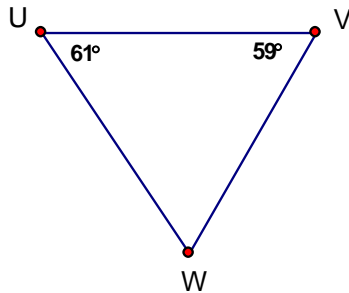
- _____141. In $\triangle ABC$ $\angle A = 8x + 12$, $\angle B = 15x - 40$, and $\angle C = 10x + 10$.
 Determine the longest side of $\triangle ABC$.
 A. \overline{AB} B. \overline{AC} C. \overline{CB} D. $\angle A$

- _____142. What equation would be perpendicular to $y = 2x + 5$
 A. $y = -x - 5$ B. $y = -2x - 5$ C. $y = -\frac{1}{2}x - 5$ D. $y = \frac{1}{2}x - 5$

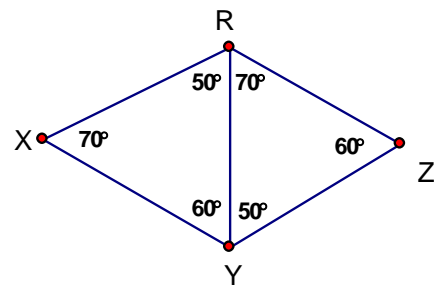
- _____143. What is the distance from (1, 5) to (7, 6)?
 A. $\sqrt{37}$ B. $\sqrt{23}$ C. $\sqrt{24}$ D. None of the above



I



II



III

- _____144. Which side is longest in figure I above?
 A. \overline{RT} B. \overline{ST} C. \overline{RS} D. Not possible

- _____145. Which side is longest in figure II above?
 A. \overline{UV} B. \overline{VW} C. \overline{UW} D. Not possible

- _____146. Which side is longest in figure III above?
 A. \overline{RX} B. \overline{RZ} C. \overline{RY} D. \overline{ZY}

- _____ 147. If \overline{BCDE} is congruent to \overline{OPQR} , then \overline{DE} is congruent to _____?
 A. \overline{PR} B. \overline{PQ} C. \overline{QR} D. \overline{OP}

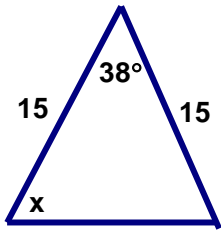


Figure 1

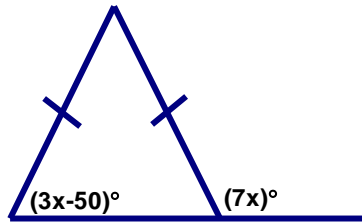


Figure 2

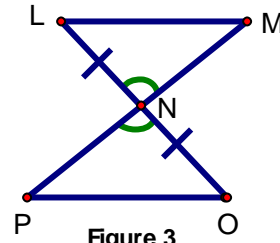


Figure 3

- _____ 148. In figure 1 above, what is the value of x ?
 A. 15 B. 38 C. 71 D. 142
- _____ 149. In figure 2 above, what is the value of x ?
 A. 40 B. 13 C. 23 D. None of the above
- _____ 150. What additional information is needed to prove that $\triangle MNL$ is congruent to $\triangle PNO$ by ASA?
 A. $\overline{MN} \cong \overline{PN}$ B. $\overline{ML} \cong \overline{PO}$ C. $\angle L \cong \angle O$ D. $\angle M \cong \angle P$
- _____ 151. Which below is an example of the transitive property?
 A. If $\angle A = \angle B$ and $\angle C = \angle D$, then $\angle A = \angle D$
 B. If $\angle A = \angle B$ and $\angle C = \angle D$, then $\angle B = \angle D$
 C. If $\angle A = \angle B$ and $\angle B = \angle D$, then $\angle A = \angle D$
 D. None of the above
- _____ 152. Line a and line b are perpendicular to each other. If line a has a slope of 4, what is the slope of line b?
 A. 4 B. -4 C. $\frac{1}{4}$ D. $-\frac{1}{4}$
- _____ 153. If $\triangle ABC \cong \triangle ERT$ with $AB = 10$, $BC = 13$, $\angle A = 39^\circ$, and $\angle R = 88^\circ$, what is RT ?
 A. 39° B. 88° C. 10 D. 13

Figure 1

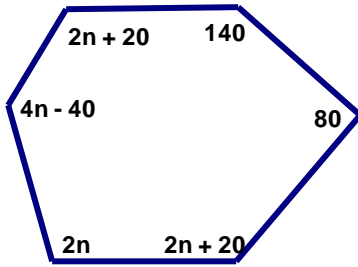


Figure 2

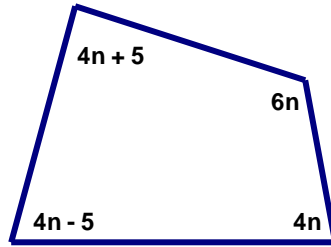
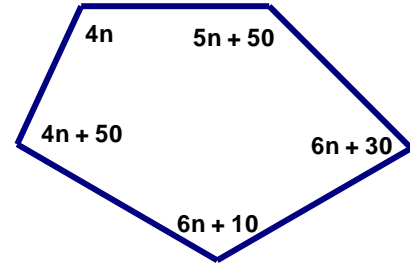


Figure 3



- ____ 154. What is the value of n in figure 1 above.
 A. 16 B. 20 C. 25 D. 50
- ____ 155. What is the value of n in figure 2 above.
 A. 16 B. 20 C. 25 D. 50
- ____ 156. What is the value of n in figure 3 above.
 A. 16 B. 20 C. 25 D. 50
- ____ 157. Which equation below would be perpendicular to $y = \frac{1}{2}x - 4$?
 A. $y = 2x - 4$ B. $y = -2x + 7$ C. $y = \frac{1}{2}x + 4$ D. $y = 8x + 4$
- ____ 158. Below are the measurements of the lengths of the side of a square.
 Which measurement would make the area of the square equal the perimeter of the square?
 A. 2 B. 3 C. 4 D. 10
- ____ 159. What measurement below for $\angle A$ and $\angle B$ would make the angles vertical angles
 and at the same time possibly consecutive interior angles?
 A. 40° B. 45° C. 90° D. 145°
- ____ 160. Who was Mr. Hickam's favorite college professor when he was at Hampden-Sydney?
 A. Albert Einstein B. Martha Stewart C. Eminem D. Lee Cohen
- ____ 161. Which of the following quadrilaterals could have diagonals that are
 congruent but do not bisect each other?
 A. rhombus B. rectangle C. trapezoid D. parallelogram
- ____ 162. In which of the following do the diagonals bisect the angles?
 A. rhombus B. rectangle C. trapezoid D. parallelogram
- ____ 163. If ABCD is a parallelogram with $\angle A = x$ and $\angle D = 2x - 3$, what is the value of x ?
 A. 3 B. 31 C. 61 D. 121
- ____ 164. Opposite angles are always congruent in a(n)
 A. trapezoid B. quadrilateral C. parallelogram D. isosceles trapezoid
- ____ 165. Not all rectangles have _____.
 A. diagonals that bisect each other C. four congruent sides
 B. diagonals that are congruent D. consecutive angles that are supplementary.

- ____ 166. Which of the following is NOT true of parallelograms?
 A. The opposite sides are congruent C. Consecutive angles are complementary
 B. The opposite angles are congruent D. The diagonals bisect each other
- ____ 167. What is D in parallelogram ABCD if $A = (0, 0)$, $B = (7, 0)$, and $C = (9, 4)$?
 A. (2, 4) B. (9, -3) C. (16, 4) D. (9, 11)
- ____ 168. What is D in parallelogram ABCD if $A = (0, 0)$, $B = (15, 0)$, and $C = (13, 4)$?
 A. (13, 19) B. (28, 4) C. (-2, 4) D. (13, -11)
- ____ 169. If ABCD is a parallelogram with $\angle A = 7x$ and $\angle B = 3x - 20$, what is the measurement of $\angle C$?
 A. 10° B. 40° C. 70° D. 140°
- ____ 170. If ABCD is an isosceles trapezoid with $\angle A = 32^\circ$, what is $\angle C$?
 A. 32° B. 64° C. 146° D. 148°
- ____ 171. Which of the following is NOT always true about a parallelogram?
 A. the diagonals bisect each other C. opposite sides are equal in length
 B. opposite angles are equal D. diagonals are perpendicular
- ____ 172. Opposite angles are NOT always congruent in a
 A. rhombus B. parallelogram C. trapezoid D. rectangle
- ____ 173. Diagonals are always perpendicular in a
 A. parallelogram B. trapezoid C. rhombus D. rectangle
- ____ 174. If two sides of a triangle have the measurements of 3 and 7, what could the third leg be?
 A. $4 < m > 10$ B. $4 \leq m \leq 10$ C. $4 < m < 10$ D. None of the above
- ____ 175. If two sides of a triangle have the measurements of 8 and 7, what could the third leg be?
 A. $1 < m < 15$ B. $1 \leq m \leq 15$ C. $7 < m < 8$ D. None of the above
- ____ 176. If two sides of a triangle have the measurements of 9 and 9, what could the third leg be?
 A. $1 < m < 18$ B. $0 < m \leq 18$ C. $0 < m < 9$ D. None of the above
- ____ 177. If two sides of a triangle have the measurements of 1 and 1, what could the third leg be?
 A. $1 < m < 1$ B. $0 > m < 2$ C. $0 < m < 2$ D. None of the above
- ____ 178. In $\triangle ABC$ $A = (3, 4)$, $B = (2, -1)$, and $C = (9, 2)$. Which angle is largest?
 A. $\angle A$ B. $\angle B$ C. $\angle C$ D. It can't be determined.
- ____ 179. In $\triangle ABC$ $A = (4, 1)$, $B = (6, 8)$, and $C = (7, 3)$. Which angle is largest?
 A. $\angle A$ B. $\angle B$ C. $\angle C$ D. It can't be determined.
- ____ 180. What is the distance from (9, 8) to (7, 10)?
 A. $\sqrt{5}$ B. $\sqrt{8}$ C. $\sqrt{10}$ D. $\sqrt{12}$
- ____ 181. If a circle has a diameter of 28 cm, what is its area?
 A. 14π B. 28π C. 56π D. 196π

- _____182. If a circle has a diameter of 28 cm, what is its circumference?
 A. 14π B. 28π C. 56π D. 196π
- _____183. Which below is the symbol for the word “therefore”?
 A. \approx B. \cong C. Δ D. \therefore
- _____184. Which below is the symbol for approximately?
 A. \approx B. \cong C. Δ D. \therefore
- _____185. Which below is the symbol congruency?
 A. \approx B. \cong C. Δ D. \therefore

Figure 1

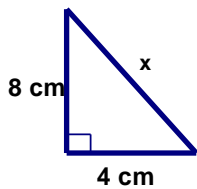


Figure 2

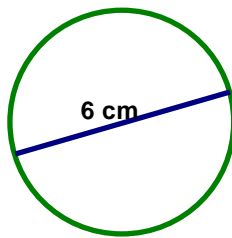


Figure 3

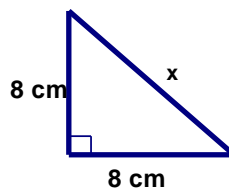


Figure 4

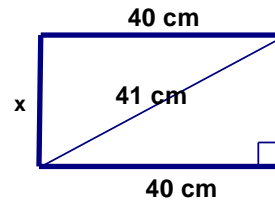
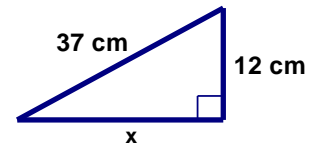


Figure 5



- _____186. What is the value of x in figure 1 above? (Round answer to the nearest tenth.)
 A. 8.9 B. 9.9 C. 10.9 D. 11.9
- _____187. What is the area of figure 2 above? (Round answer to the nearest tenth.)
 A. 18.8 cm^2 B. 28.3 cm^2 C. 37.7 cm^2 D. 113.1 cm^2
- _____188. What is the value of x in figure 3 above?
 A. 8.9 B. 11.3 C. 12.3 D. 14.2
- _____189. What is the value of x in figure 4 above?
 A. 8 B. 9 C. 11 D. 15
- _____190. What is the value of x in figure 5 above?
 A. 33.9 B. 35 C. 37 D. 38.9

Figure 1

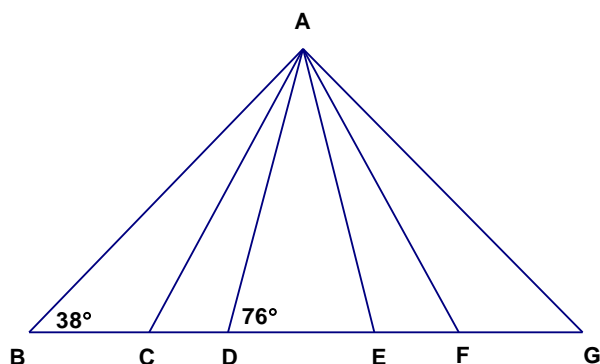


Figure 2

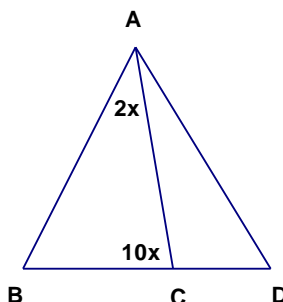
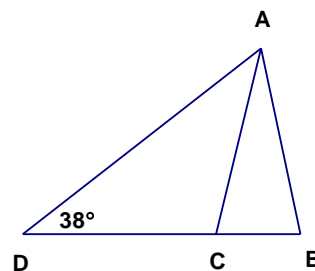


Figure 3



- ____ 191. In figure 1 above, $\triangle ABG$ and $\triangle DAE$ are isosceles triangles and $\triangle CAF$ is an equilateral triangle. Find the measurement of $\angle EAF$.
- A. 14° B. 16° C. 18° D. 40°
- ____ 192. In figure 2 above, what is the measurement of $\angle CAD$ if $\triangle ABD$ is an equilateral triangle?
- A. 16° B. 24° C. 40° D. 46°
- ____ 193. In figure 3 above, $AB = AC = DC$. What is the measurement of $\angle CAB$?
- A. 15° B. 28° C. 34° D. 38°
- ____ 194. If the area of a circle is 1017.88 cm^2 , what is the circle's circumference?
- A. 56.5 cm B. 100.5 cm C. 113.1 cm D. 131.9 cm
- ____ 195. How many sides does a dodecagon have?
- A. 9 B. 10 C. 12 D. 15
- ____ 196. Let $A = (7, 8)$, $B = (9, 13)$, and $C = (14, 14)$. How far is it to go from A to C and then to B?
- A. 10.5 B. 12.4 C. 14.3 D. 15.6
- ____ 197. B is between A and C. $AB = 2n$, $BC = n + 11$, and $AC = 44$. What is the numerical length of AB?
- A. 18 B. 22 C. 24 D. 26
- ____ 198. Rounding to the nearest whole number, what is the perimeter of a triangle with the following vertices: (2, 2) (4, 6) (3, 10)
- A. 17 B. 18 C. 20 D. 22
- ____ 199. In $\triangle ABC$, X is the midpoint of \overline{AB} , Y is the midpoint of \overline{BC} , and Z is the midpoint of \overline{AC} . $A = (2, 5)$ $B = (10, 15)$ $C = (18, 17)$ What is XY?
- A. 9 B. 10 C. 12 D. 13
- ____ 200. A right triangle has a hypotenuse of 13 cm and its area is 30 cm. What is the perimeter of the right triangle?
- A. 18 B. 22 C. 24 D. 30

- _____ 201. All of the points in this problem are collinear.
 B is the midpoint of \overline{AC} . X is the midpoint of \overline{AB} .
 Y is the midpoint of \overline{BC} . D is the midpoint of \overline{XB} .
 F is the midpoint of \overline{DB} . If $DF = 2\text{cm}$, what is AC ?
 A. 24 B. 28 C. 30 D. 32
- _____ 202. Assume the statement $p \rightarrow r$.
 What is the converse of the inverse of the contrapositive of this statement?
 A. $p \rightarrow r$ B. $p \rightarrow \sim r$ C. $\sim p \rightarrow r$ D. $r \rightarrow p$
- _____ 203. In a class of 28 students, 20 students are studying French, 12 students are studying Spanish and 8 are studying both French and Spanish.
 How many students in this class are studying neither French nor Spanish?
 A. 4 B. 6 C. 8 D. 10
- _____ 204. Give the equation of the line that goes through the point (2, 3) and is perpendicular to the line that goes through the points (1, 4) and (7, 5).
 A. $y = -6x + 12$ B. $y = -6x + 15$ C. $y = 6x + 12$ D. $y = 6x + 15$
- _____ 205. $\triangle ABC$ is a right isosceles triangle with A located at the point (2, 3) and $\angle CAB = 90^\circ$.
 If $AB = 6$ and $AC = 6$, what is BC ? (Round answer to the nearest tenth.)
 A. 6.5 B. 7.2 C. 7.8 D. 8.5

Figure 1

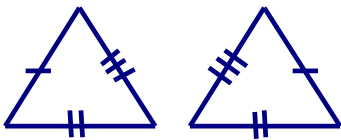


Figure 2

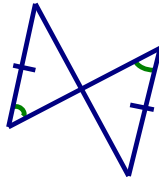
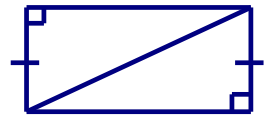


Figure 3



Figure 4



- _____ 206. In figure 1 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. SSS E. Not able to be proven
- _____ 207. In figure 2 above, what postulate would prove congruency?
 A. SSS B. SAS C. ASA D. AAS E. Not able to be proven
- _____ 208. In figure 3 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- _____ 209. In figure 4 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. SSS E. Not able to be proven

Figure 1

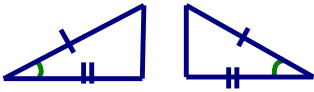


Figure 2

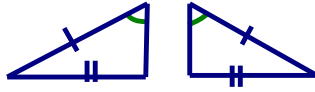


Figure 3



Figure 4

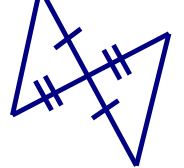


Figure 5

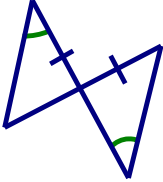


Figure 6

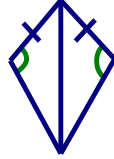


Figure 7

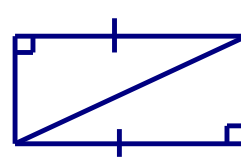


Figure 8

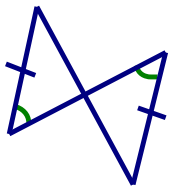


Figure 9

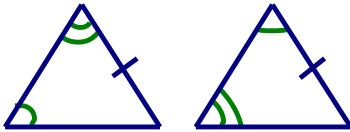


Figure 10

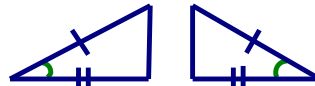
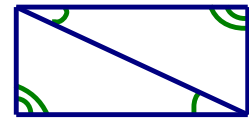


Figure 11



- ____ 210. In figure 1 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 211. In figure 2 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 212. In figure 3 above, what postulate would prove congruency?
 A. HL B. SSS C. ASA D. AAS E. Not able to be proven
- ____ 213. In figure 4 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 214. In figure 5 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 215. In figure 6 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 216. In figure 7 above, what postulate would prove congruency?
 A. HL B. SSS C. ASA D. AAS E. Not able to be proven
- ____ 217. In figure 8 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 218. In figure 9 above, what postulate would prove congruency?
 A. SSS B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 219. In figure 10 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven
- ____ 220. In figure 11 above, what postulate would prove congruency?
 A. HL B. SAS C. ASA D. AAS E. Not able to be proven