

Honors Geometry
Semester 1 Review

Name: KEY
Date: _____ Class: _____

Write the slope intercept equation of the lines with the following characteristics:

- | | |
|---|----------|
| 1. Line with a slope of $-4/5$ and a y-intercept of 9 | 1. _____ |
| 2. x-intercept of 3 and y intercept of -6 | 2. _____ |
| 3. Slope of $3/2$ that goes through point (5,2) | 3. _____ |

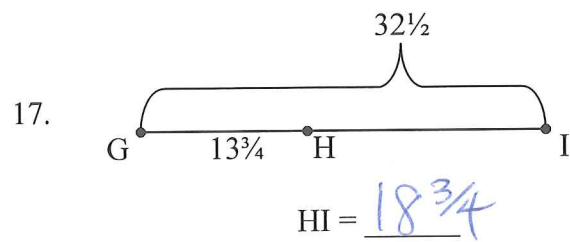
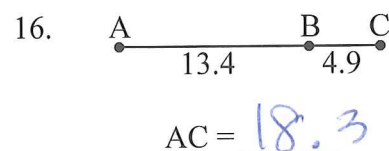
Use the diagram at the right for numbers 4-10:

- | | |
|---|--|
| 4. Name four coplanar points. <u>AB, C, D or E, F, G, H</u> | |
| 5. Name three collinear points. <u>E, F, G</u> | |
| 6. Name two coplanar lines. <u>m + BC or EG</u> | |
| 7. Planes P and Q intersect at <u>line m</u> | |
| 8. Will line BC and line m intersect? <u>yes</u> | |
| 9. Name the plane that contains A, D, & B. <u>plane P or plane ABCD (any 3)</u> | |
| 10. Line n intersects plane P at <u>point D</u> | |

Decide whether the statements are true or false:

- | | |
|--|--------------|
| 11. Two lines must intersect at one point. <u>// or skew</u> | 11. <u>F</u> |
| 12. The intersection of two lines is one point. | 12. <u>T</u> |
| 13. A plane contains more than 2 lines. | 13. <u>T</u> |
| 14. A plane contains an infinite number of both points <i>and</i> lines. | 14. <u>T</u> |
| 15. A point has only one dimension. <u>0 dim. line is 1 dim.</u> | 15. <u>F</u> |

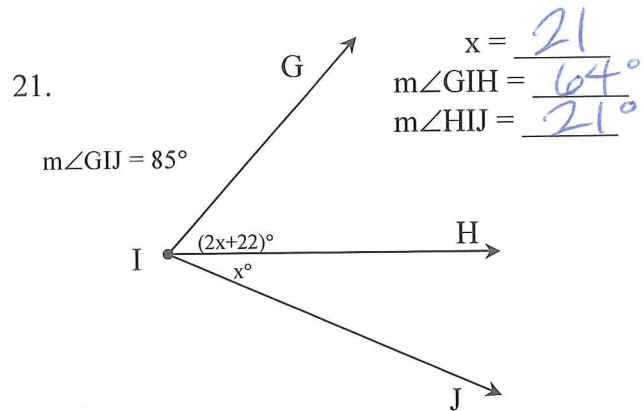
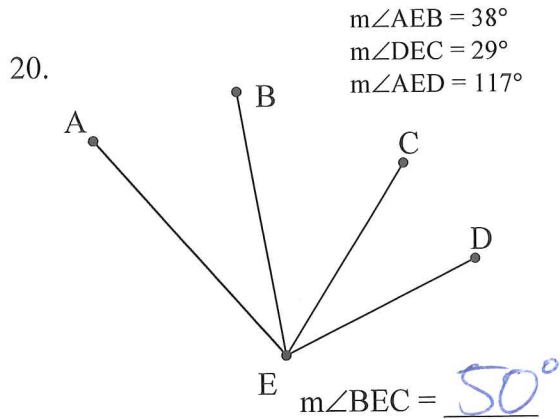
Find the desired length:



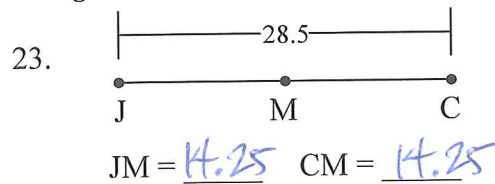
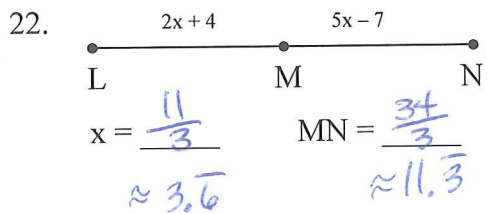
Find the distance between the two points:

18. ~~A (4,6) & B (1,2) AB = _____~~ 19. ~~C (4,6) & D (-3,6) CD = _____~~

Find the measure of the desired angle or variable:



M is the midpoint of the segment. Find the segment lengths.



Find the coordinates of the midpoint of KM.

24. K (1,3) M (5,9)

Midpoint = $(3,6)$

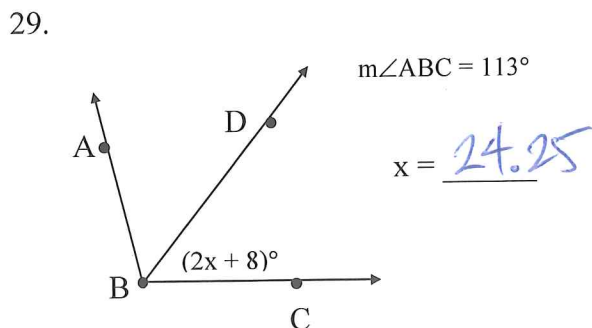
25. K (-2,4) M (6,8)

Midpoint = $(2,6)$

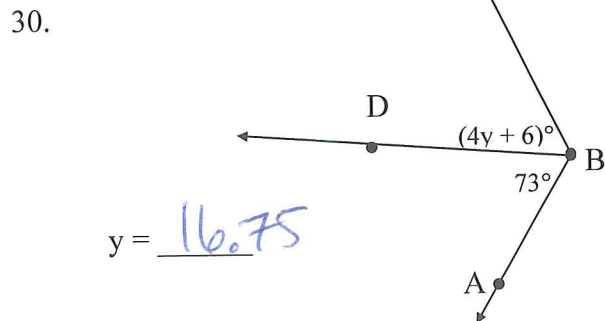
26. K (5,7) M (7,2)

Midpoint = $(6, \frac{9}{2})$

BD bisects $m\angle ABC$. Find the value of the variable.

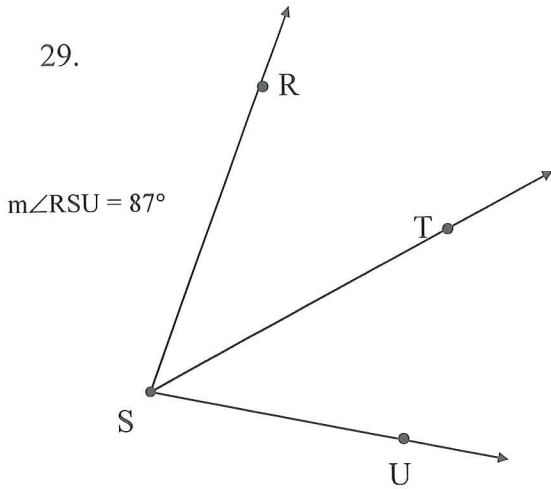


$2(2x+8) = 113$



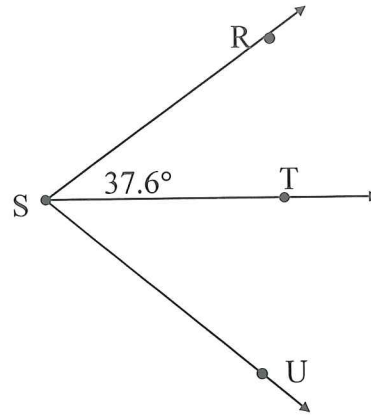
$4y+6 = 73$

ST bisects $\angle RSU$. Find the angle measures:



$m\angle RST = \underline{43.5}$ $m\angle UST = \underline{43.5}$

30.



$m\angle UST = \underline{37.6}$ $m\angle USR = \underline{75.2}$

Find the measure of a complement and supplement of the angle.

31. 48° Complement = 42

Supplement = 132

32. 13° Complement = 77

Supplement = 167

Find the measure of the angle described.

33. $\angle 3$ and $\angle 4$ are vertical angles, and $m\angle 3 = 56.2^\circ$. Find $m\angle 4$.

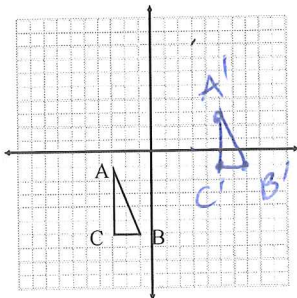
56.2°

34. $\angle 5$ and $\angle 6$ are a linear pair, and $m\angle 6 = 124^\circ$. Find $m\angle 5$.

56°

For problems 35 - 38, write the transformation rules, write the coordinates of the new points after the given translation then draw the image of the figure.

35.

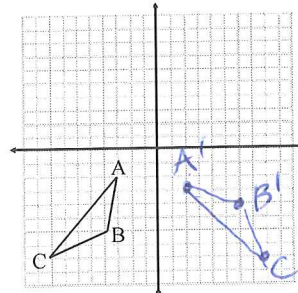


Right 8 & Up 5

Rule: $(x, y) \rightarrow (\underline{x+8}, \underline{y+5})$

$A' (\underline{5}, \underline{3})$ $B' (\underline{7}, \underline{-1})$ $C' (\underline{5}, \underline{-1})$

36.

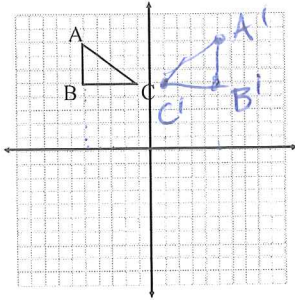


90° Counterclockwise Rotation

Rule: $(x, y) \rightarrow (\underline{-y}, \underline{x})$

$A' (\underline{2}, \underline{-3})$ $B' (\underline{6}, \underline{-4})$ $C' (\underline{8}, \underline{-8})$

37.

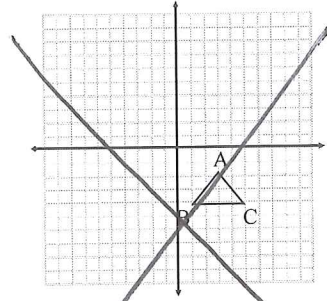


X-Axis Reflection

Rule: $(x, y) \rightarrow (x, -y)$

$A' (5, 8)$ $B' (5, 5)$ $C' (1, 5)$

38.



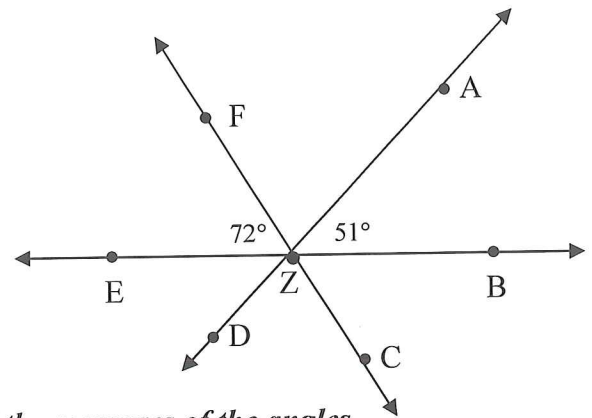
Dilation with Scale Factor = 2

Rule: $(x, y) \rightarrow (2x, 2y)$

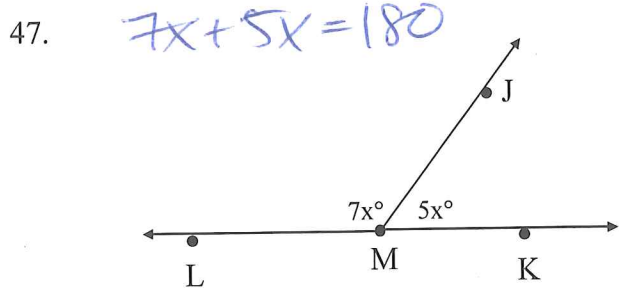
$A' (2, 2)$ $B' (4, 2)$ $C' (4, 4)$

Use the diagram to find the desired angle measures.

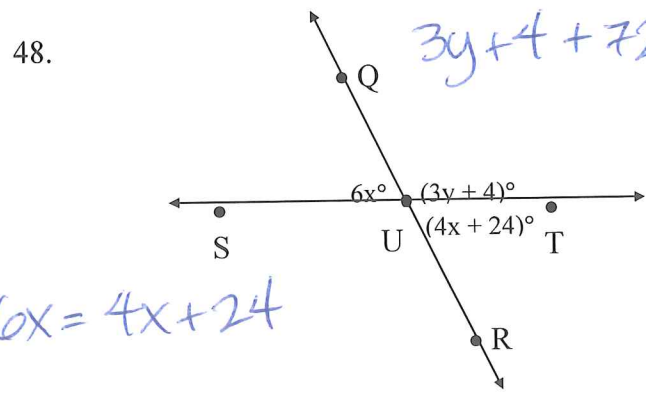
- 39. $m\angle AZF = 57^\circ$
- 40. $m\angle EZD = 51^\circ$
- 41. $m\angle CZD = 57^\circ$
- 42. $m\angle CZB = 72^\circ$
- 43. $m\angle AZE = 129^\circ$
- 44. $m\angle CZE = 108^\circ$
- 45. $m\angle CZF = 180^\circ$
- 46. $m\angle AZC = 123^\circ$



Find the values of the variable. Then use substitution to find the measures of the angles.



$x = 15$
 $m\angle JML = 105^\circ$
 $m\angle JMK = 75^\circ$

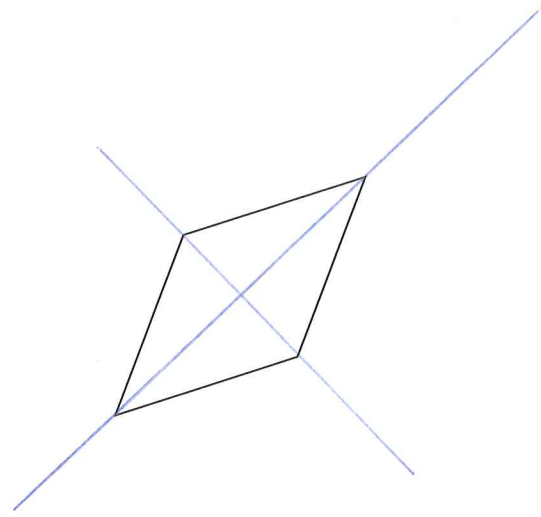
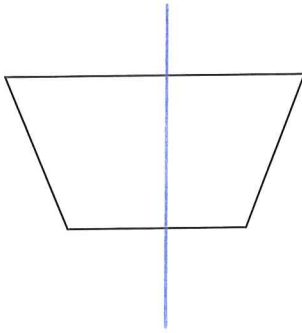


$6x = 4x + 24$

$x = 12$
 $y = 34.6$
 $m\angle QUT = 108^\circ$
 $m\angle TUR = 72^\circ$

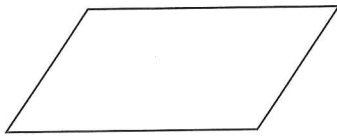
Draw all the lines of symmetry for figures below.

49.

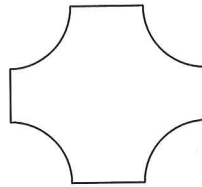


Which of the following shapes has rotational symmetry? If the shape does, state the order and magnitude of the rotational symmetry.

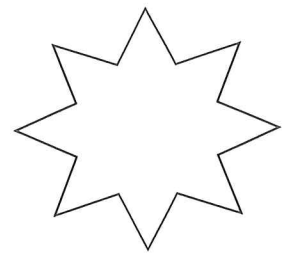
50.



51.



52.



Rotational Symmetry: Yes/No

Order: 2

Magnitude: 180

Rotational Symmetry: Yes/No

Order: 4

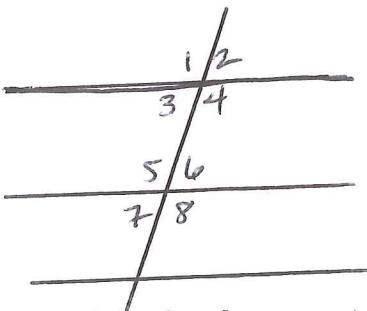
Magnitude: 90

Rotational Symmetry: Yes/No

Order: 8

Magnitude: 45

Use the diagram to answer the following questions.



53. Name 2 pairs of corresponding angles

1+5, 2+6, 3+7, 4+8

54. Name 2 pairs of same-side interior angles

3+5, 4+6

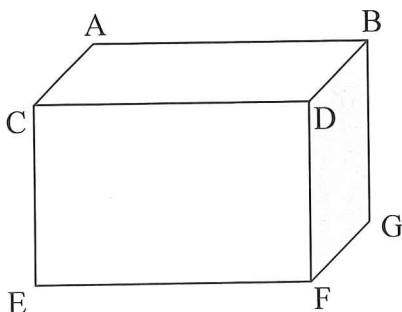
55. Name 2 pairs of alternate interior angles

3+6, 4+5

56. Name 2 pairs of alternate exterior angles

1+8, 2+7

Think of each segment in the diagram as part of a line.



63. Name a line that is skew to DB

EF

64. Name a plane that is parallel to plane ABC

EFG

65. Name a line that is perpendicular to line CD

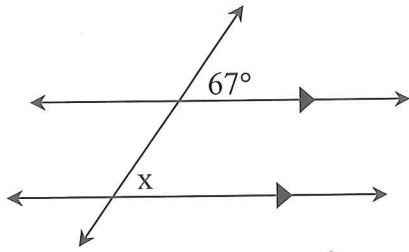
CE or DF

66. Name a line that is perpendicular to plane BDF

AB or CD or EF

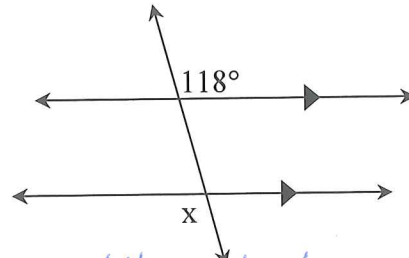
State what relationship the two given angles have and then find the value of x.

57.



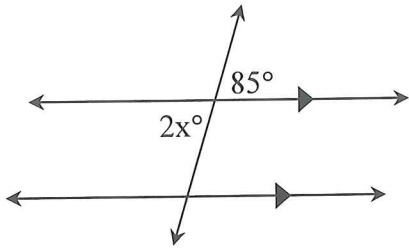
Relationship: Corresponding $x = 67^\circ$

58.



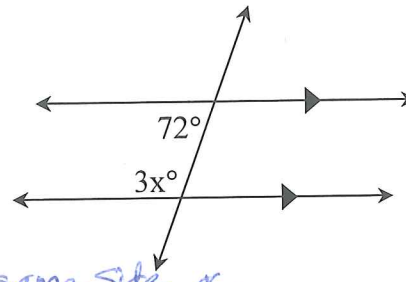
Relationship: Alt. Ext. \angle $x = 118^\circ$

59.



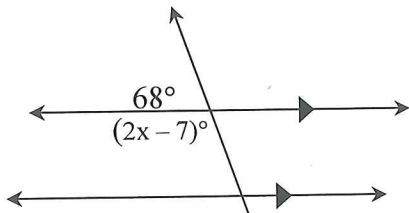
Relationship: vertical $x = 42.5$

60.



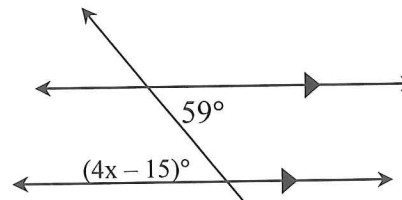
Relationship: same side or consecutive $x = 36$

61.



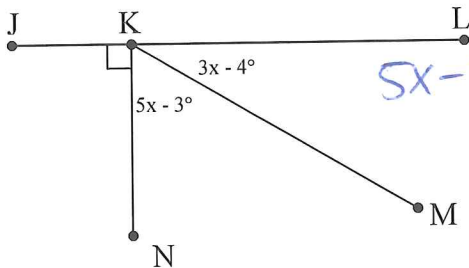
Relationship: linear pair $x = 59.5$

62.



Relationship: Alt. Int. \angle s $x = 18.5$

Use the figure below to answer questions 67-70.



$$5x - 3 + 3x - 4 = 90$$

67. $x = 12.125$

68. $\angle LKM = 32.375^\circ$

69. $\angle NKM = 57.625^\circ$

70. $\angle JKM = 147.625^\circ$

Decide whether the statements are true or false:

71. All right angles are congruent.

72. Adjacent right angles are supplementary.

73. If two lines are both \parallel to a third line they are \perp to each other.

74. If two lines are both \perp to a third line they are \parallel to each other.

75. If two lines are both \perp to a third line they are \perp to each other.

76. If two lines are both \parallel to a third line they are \parallel to each other.

71. T

72. T

73. F

74. T

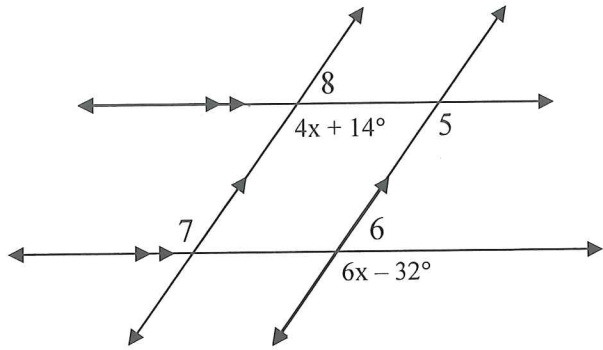
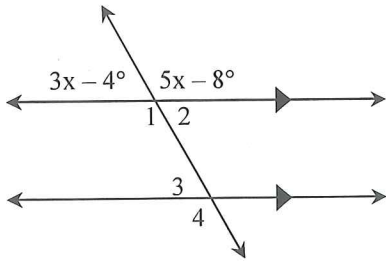
75. F

76. T

\neq

Find the measures of all angles.

$$3x - 4 + 5x - 8 = 180$$



77. $x = 24$

78. $m\angle 1 = 112$

79. $m\angle 2 = 68$

80. $m\angle 3 = 68$

81. $m\angle 4 = 112$

82. $x = 23$

83. $m\angle 5 = 106$

84. $m\angle 6 = 74$

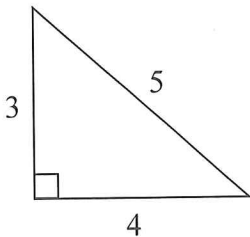
85. $m\angle 7 = 106$

86. $m\angle 8 = 74$

$$4x + 14 = 6x - 32$$

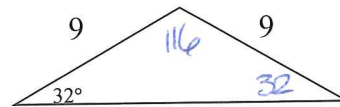
Classify the triangle by its angles and its sides.

87.



right scalene

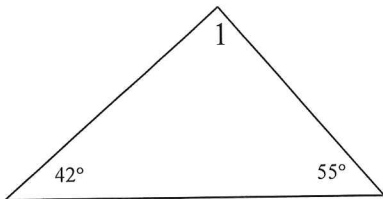
88.



obtuse isosceles

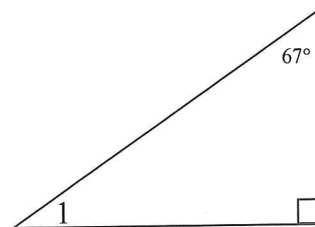
Find the measure of $\angle 1$.

89.



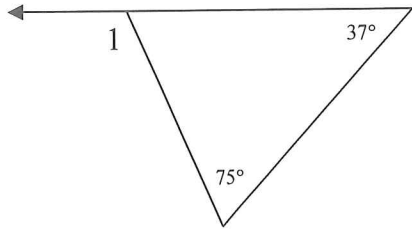
$m\angle 1 = 83^\circ$

90.



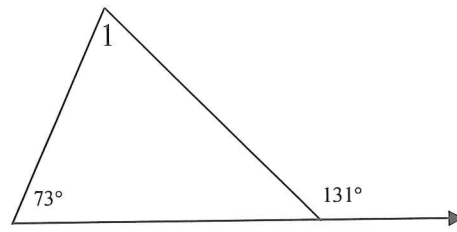
$m\angle 1 = 23^\circ$

91.



$$m\angle 1 = 112^\circ$$

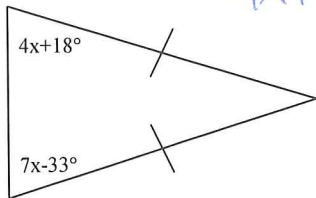
92.



$$m\angle 1 = 58^\circ$$

Find the value of x.

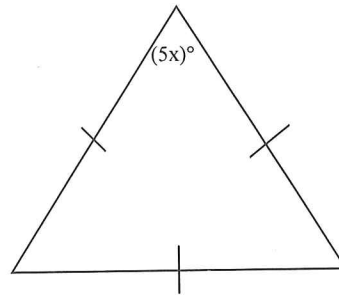
93.



$$x = 17$$

$$4x + 18 = 7x - 33$$

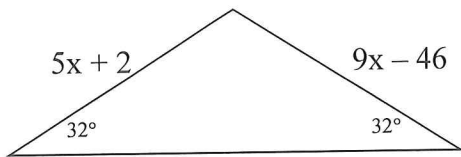
94.



$$x = 12$$

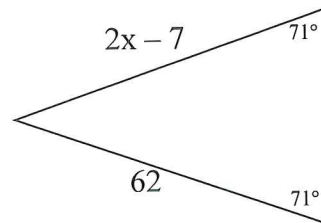
$$5x = 60$$

95.



$$5x + 2 = 9x - 46 \quad x = 12$$

96.

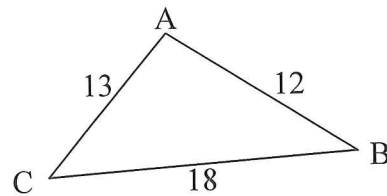


$$x = 34.5$$

$$2x - 7 = 62$$

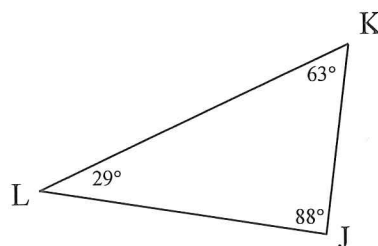
107. Order the angles from smallest to largest.

$\angle C, \angle B, \angle A$



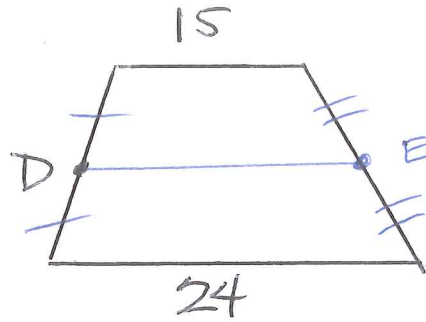
108. Order the sides from smallest to largest.

KJ, LJ, KL



109. Draw the median from D to its opposite side.
Show that the line is a median.

$$DE = \frac{(15 + 24)}{2} = 19.5$$



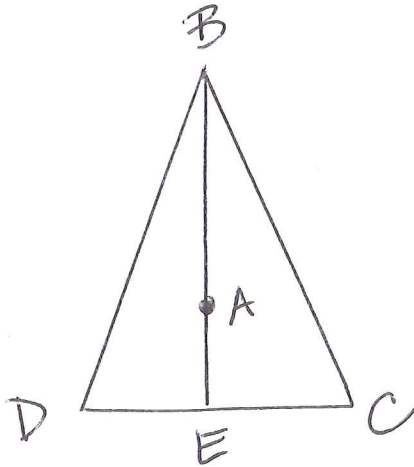
For numbers 110-112, fill in the blank.

110. A median connects a vertex to the midpoint of the opposite side.

111. Each triangle has 3 medians.

112. The medians of a triangle meet at a point called the centroid.

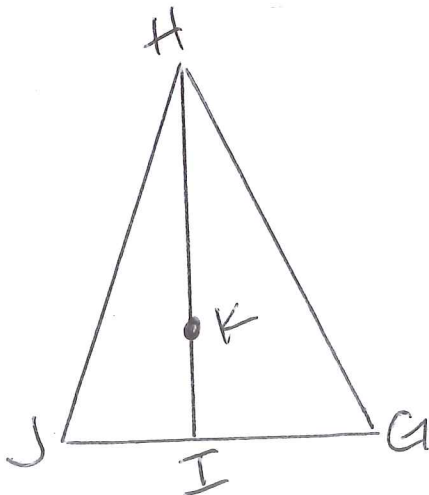
113. A is the centroid of $\triangle BCD$, and $BE = 30$. Find AE & AB .



$$AE = \underline{10}$$

$$AB = \underline{20}$$

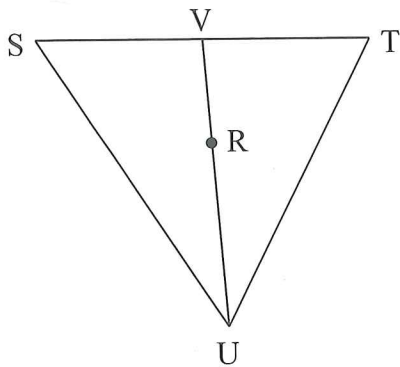
114. K is the centroid of $\triangle HGJ$, and $KI = 7$. Find HK & HI .



$$HI = \underline{21}$$

$$HK = \underline{14}$$

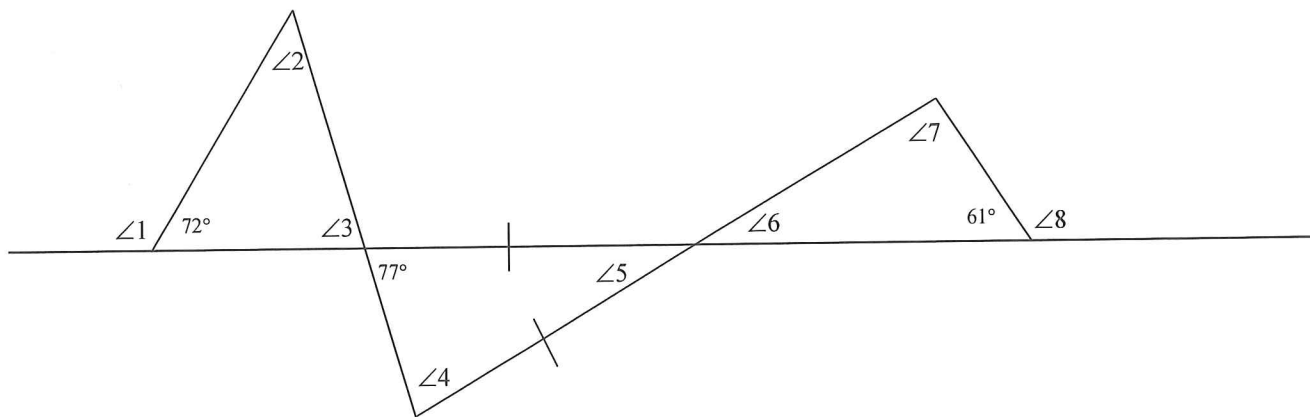
115. R is the centroid of ΔSTU , and $RU = 40$. Find RV & UV .



$RV = \underline{20}$

$UV = \underline{60}$

116. Find the measures of the angles.



$m\angle 1 = \underline{108^\circ}$

$m\angle 2 = \underline{31^\circ}$

$m\angle 3 = \underline{77^\circ}$

$m\angle 4 = \underline{77^\circ}$

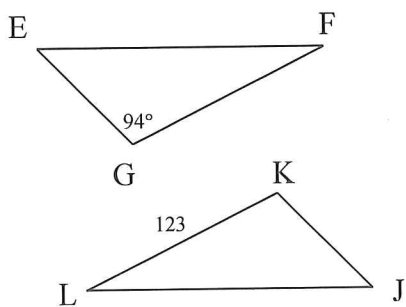
$m\angle 5 = \underline{26^\circ}$

$m\angle 6 = \underline{26^\circ}$

$m\angle 7 = \underline{93^\circ}$

$m\angle 8 = \underline{119^\circ}$

In the diagram below, $\Delta EFG \cong \Delta JLK$. Complete the statements.



117. $\angle F$ is congruent to what \angle ?

117. $\angle L$

118. What is the measure of $\angle K$?

118. 94°

119. KJ is congruent to what side?

119. \overline{GE}

120. What is the measure of GF ?

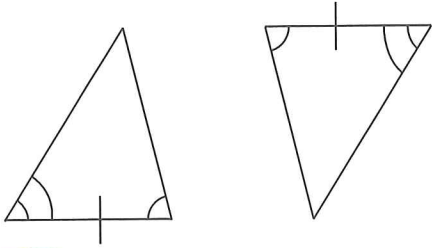
120. 123

121. ΔLKJ is congruent to what triangle?

121. ΔFGE

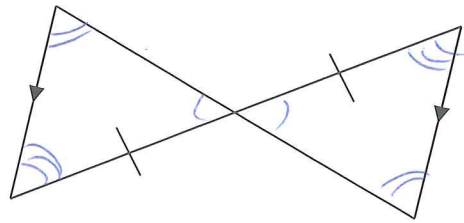
Does the diagram give enough information to show that the triangles are congruent? If so, state the postulate or theorem you would use.

122.



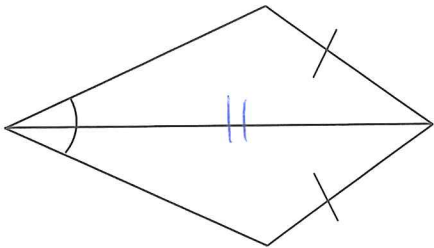
Yes / No
Justification ASA

123.



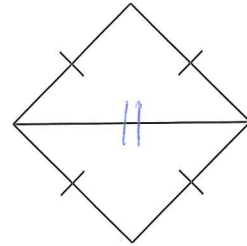
Yes / No
Justification ASA or SAA

124.



Yes / No
Justification _____

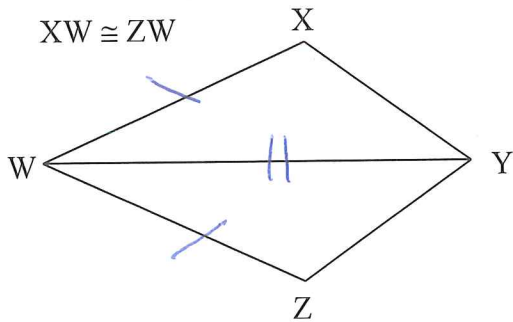
125.



Yes / No
Justification SSS

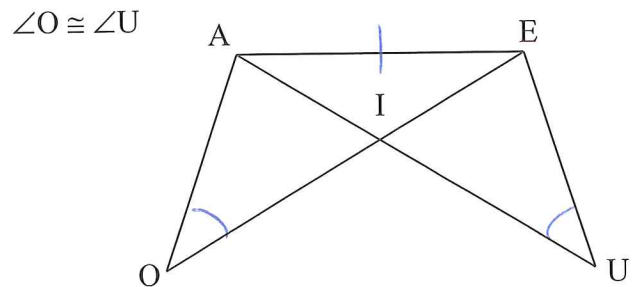
Tell which triangles you need to show are congruent in order to show that the given statement is true.

128.

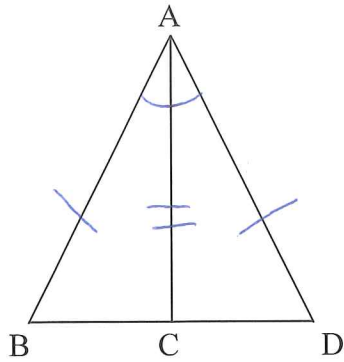


$\triangle WXY \cong \triangle WZY$

129.

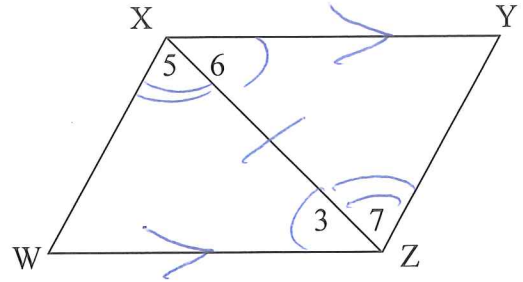


$\triangle EAO \cong \triangle AEU$



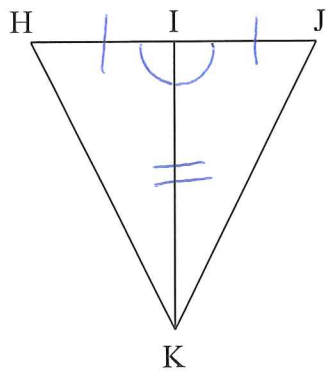
130. Given: $AB \cong AD$; AC bisects $\angle BAD$
 Prove: $\triangle ABC \cong \triangle ADC$

Statements	Reasons
A) $AB \cong AD$	A) <u>given</u>
B) <u>AC bisects $\angle BAD$</u>	B) <u>Given</u>
C) $\angle BAC \cong \angle DAC$	C) <u>Defn of bisector</u>
D) $\overline{AC} \cong \overline{AC}$	D) <u>Reflexive</u>
E) $\triangle ABC \cong \triangle ADC$	E) <u>SAS</u>



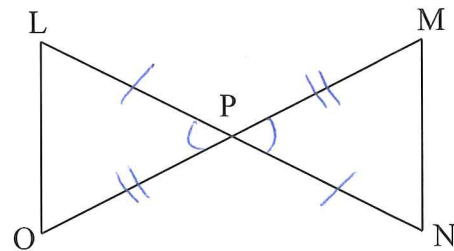
131. Given: $XY \parallel WZ$ & $\angle 5 \cong \angle 7$
 Prove: $WX \cong YZ$

Statements	Reasons
A) $XY \parallel WZ$	A) <u>Given</u>
B) <u>$\angle 3 \cong \angle 6$</u>	B) <u>Alt. Int. \angle TH.</u>
C) $\angle 5 \cong \angle 7$	C) <u>given</u>
D) <u>$\overline{XZ} \cong \overline{XZ}$</u>	D) <u>Reflexive Prop.</u>
E) $\triangle XWZ \cong \triangle ZYX$	E) <u>ASA</u>
F) <u>$\overline{WX} \cong \overline{YZ}$</u>	F) <u>CPCTC</u>



132. Given: $\angle HIK \cong \angle JIK$; KI bisects HJ
 Prove: $\triangle HIK \cong \triangle JIK$

Statements	Reasons
A) <u>$\angle HIK \cong \angle JIK$</u>	A) <u>given</u>
B) <u>KI bisects HJ</u>	B) <u>given</u>
C) <u>$\overline{HI} \cong \overline{JI}$</u>	C) <u>def. bisector</u>
D) <u>$\overline{IK} \cong \overline{IK}$</u>	D) <u>reflexive</u>
E) <u>$\triangle HIK \cong \triangle JIK$</u>	E) <u>SAS</u>



133. Given: P is the midpoint of OM & LN
 Prove: $\angle O \cong \angle M$

Statements	Reasons
A) <u>P is midpoint of OM & LN</u>	A) <u>given</u>
B) <u>$LP \cong PN$</u>	B) <u>def. of midpoint</u>
C) <u>$OP \cong PM$</u>	C) <u>def. of midpoint</u>
D) <u>$\angle LPO \cong \angle MNP$</u>	D) <u>Vertical \angles \cong</u>
E) <u>$\triangle OPL \cong \triangle MPN$</u>	E) <u>SAS</u>
F) <u>$\angle O \cong \angle M$</u>	F) <u>CPCTC</u>