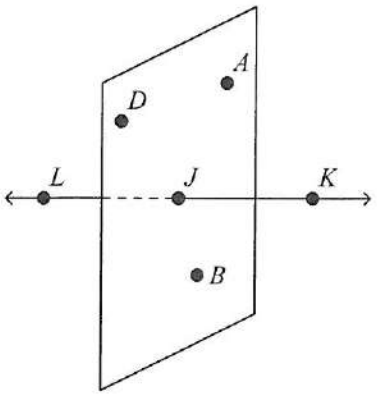
Name: _____ Class: _____ Date: _____ ID: A

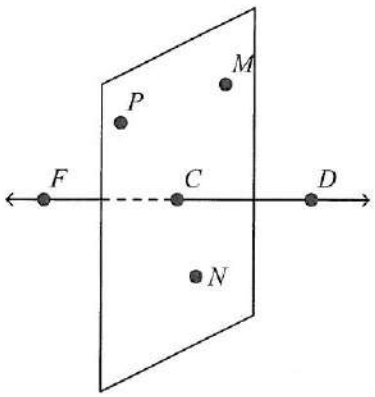
Pre-AP Geometry Trimester Exam Review

1. What are the names of three collinear points?



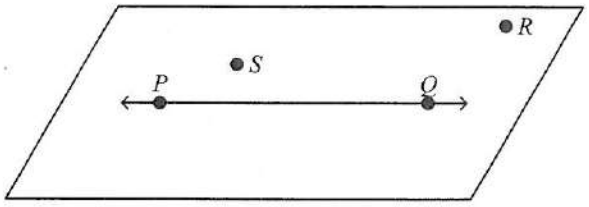
A. Points A, J, and B are collinear.
B. Points L, J, and K are collinear.
C. Points D, J, and B are collinear.
D. Points D, J, and K are collinear.

2. What are the names of four coplanar points?



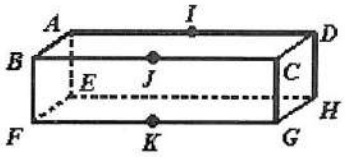
A. Points P, M, F, and C are coplanar.
B. Points F, D, P, and N are coplanar.
C. Points P, M, N, and C are coplanar.
D. Points P, M, D, and C are coplanar.

3. Name the line and plane shown in the diagram.



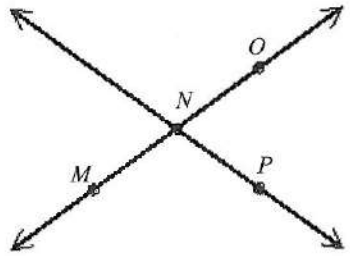
A. $\overleftrightarrow{QP}$ and plane SR
B. $\overleftrightarrow{PQ}$ and plane PQS
C. $\overleftrightarrow{PQ}$ and plane SP
D. line P and plane PQS

4. Are points C, G, and H collinear or noncollinear?



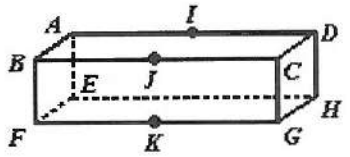
A. noncollinear
B. collinear
C. impossible to tell

5. Are M, N, and O collinear? If so, name the line on which they lie.



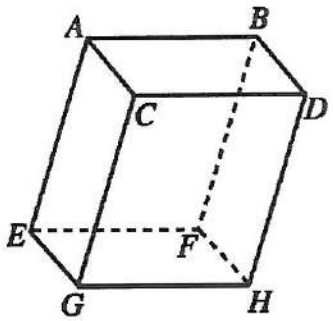
A. Yes, they lie on the line NP.
B. Yes, they lie on the line MP.
C. Yes, they lie on the line MO.
D. No, the three points are not collinear.

6. Name the plane represented by the front of the box.



A. CAB
B. GBF
C. BJC
D. DBF

7. What are the names of three planes that contain point A?

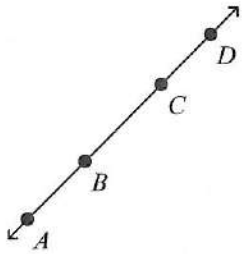


A. planes $ABDC$, $ABFE$, and $ACHF$
B. planes $ABDC$, $ABFE$, and $CDHG$
C. planes $CDHG$, $ABFE$, and $ACHF$
D. planes $ABDC$, $EFGH$, and $ACHF$

8. Name the ray in the figure.

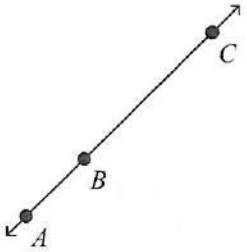
A. $\overrightarrow{BA}$
B. $\overleftrightarrow{AB}$
C. $\overline{AB}$
D. $\overrightarrow{AB}$

9. What is the name of the ray that is opposite $\overrightarrow{BD}$?



A. $\overrightarrow{BD}$
B. $\overrightarrow{CD}$
C. $\overrightarrow{BA}$
D. $\overrightarrow{AD}$

10. What are the names of the segments in the figure?

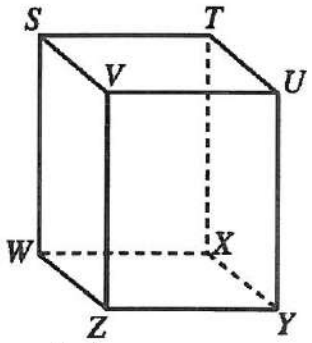


A. The three segments are $\overline{AB}$, $\overline{CA}$, and $\overline{AC}$.
B. The three segments are $\overline{AB}$, $\overline{BC}$, and $\overline{BA}$.
C. The three segments are $\overline{AB}$, $\overline{BC}$, and $\overline{AC}$.
D. The two segments are $\overline{AB}$ and $\overline{BC}$.

11. Name the intersection of plane ACG and plane BCG.

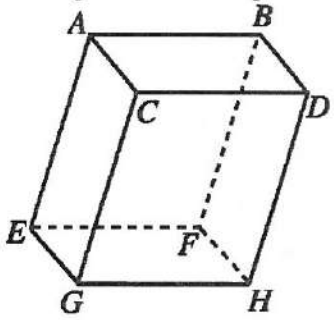
A. $\overleftrightarrow{AC}$
B. $\overleftrightarrow{BG}$
C. $\overleftrightarrow{CG}$
D. The planes need not intersect.

12. What is the intersection of plane $STXW$ and plane $SVUT$?



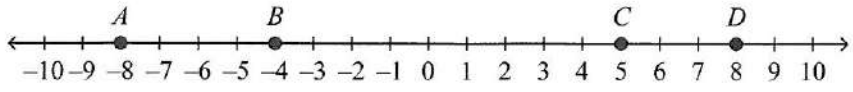
A. $\overleftrightarrow{SV}$
B. $\overleftrightarrow{ST}$
C. $\overleftrightarrow{YZ}$
D. $\overleftrightarrow{TX}$

13. What plane contains points C, D, and G?



A. The plane on the bottom of the figure.
B. The plane on the top of the figure.
C. The plane on the front of the figure.
D. The plane that passes at a slant through the figure.

14. What is the length of $\overline{AC}$?



A. 13 B. 16 C. 15 D. 3

15. If $EF = 6$ and $EG = 21$, find the value of FG. The drawing is not to scale.

A. 17
B. 15
C. 14
D. 6

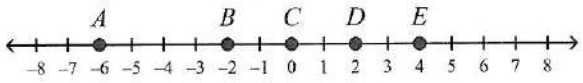
16. If $EF = 4x + 15$, $FG = 39$, and $EG = 110$, find the value of x. The drawing is not to scale.

A. $x = 56$
B. $x = 16$
C. $x = 14$
D. $x = 2$

17. If $EG = 25$, and point F is 2/5 of the way between E and G, find the value FG.
The drawing is not to scale.

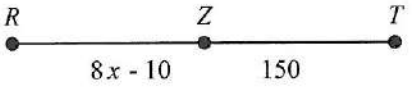
A. 12.5
B. 10
C. 15
D. 20

18. What segment is congruent to $\overline{AC}$?



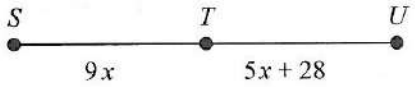
A. $\overline{BD}$
B. $\overline{BE}$
C. $\overline{CE}$
D. none

19. If Z is the midpoint of $\overline{RT}$, what are x, RZ, and RT?



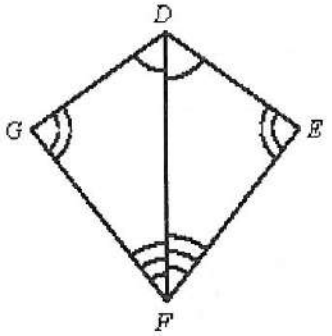
A. $x = 18$, $RZ = 134$, and $RT = 268$
B. $x = 22$, $RZ = 150$, and $RT = 300$
C. $x = 20$, $RZ = 150$, and $RT = 300$
D. $x = 20$, $RZ = 300$, and $RT = 150$

20. If T is the midpoint of $\overline{SU}$, what are ST, TU, and SU?



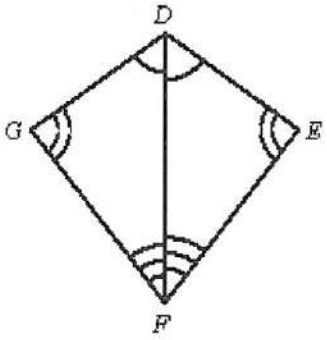
A. $ST = 7$, $TU = 63$, and $SU = 126$
B. $ST = 80$, $TU = 80$, and $SU = 160$
C. $ST = 18$, $TU = 18$, and $SU = 36$
D. $ST = 63$, $TU = 63$, and $SU = 126$

21. Complete the statement.



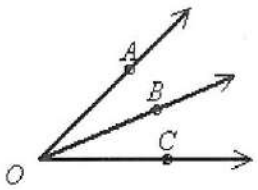
$\angle GDF \cong$?
A. $\angle DGF$
B. $\angle DEF$
C. $\angle EDF$
D. $\angle DFE$

22. Complete the statement.
The drawing is not to scale.



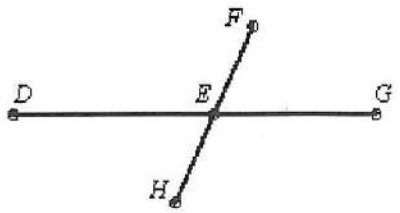
If $m\angle GDF = 54°$, then $m\angle EDF =$ ___?___.
A. 27°
B. 54°
C. 63°
D. none of these

23. If $m\angle AOC = 85°$, $m\angle BOC = 2x + 10$, and $m\angle AOB = 4x - 15$, find the degree measure of $\angle BOC$ and $\angle AOB$. The diagram is not to scale.



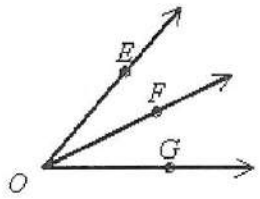
A. $m\angle BOC = 30°$; $m\angle AOB = 55°$
B. $m\angle BOC = 40°$; $m\angle AOB = 45°$
C. $m\angle BOC = 45°$; $m\angle AOB = 40°$
D. $m\angle BOC = 55°$; $m\angle AOB = 30°$

24. If $m\angle DEF = 119$, then what are $m\angle FEG$ and $m\angle HEG$? The diagram is not to scale.



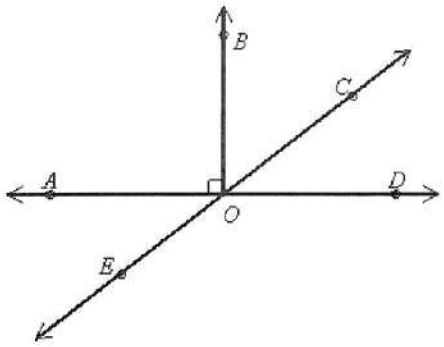
A. $m\angle FEG = 71$, $m\angle HEG = 119$
B. $m\angle FEG = 119$, $m\angle HEG = 61$
C. $m\angle FEG = 61$, $m\angle HEG = 129$
D. $m\angle FEG = 61$, $m\angle HEG = 119$

25. If $m\angle EOF = 26$ and $m\angle FOG = 38$, then what is the measure of $\angle EOG$? The diagram is not to scale.



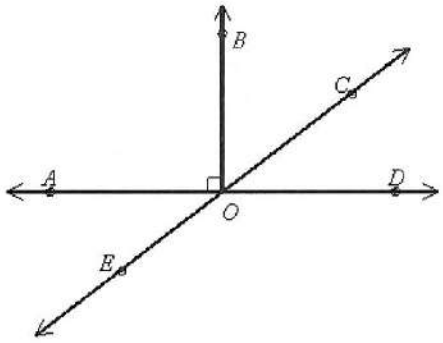
A. 64
B. 12
C. 52
D. 76

26. Name an angle supplementary to $\angle COD$.



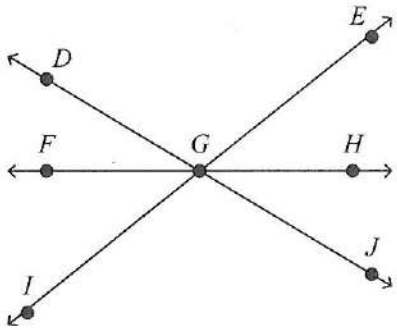
A. $\angle BOD$
B. $\angle COA$
C. $\angle AOE$
D. $\angle COB$

27. Name an angle complementary to $\angle BOC$.



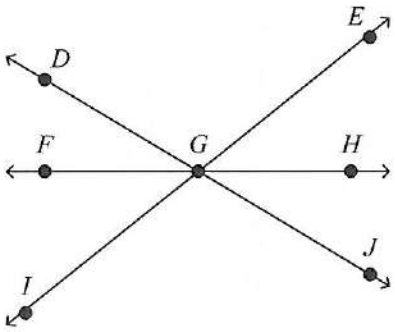
A. $\angle DOE$
B. $\angle BOE$
C. $\angle BOA$
D. $\angle COD$

28. Name an angle vertical to $\angle FGI$.



A. $\angle IGH$
B. $\angle DFG$
C. $\angle HGE$
D. $\angle HGJ$

29. Name an angle adjacent to $\angle DGE$.



A. $\angle FGI$
B. $\angle EGH$
C. $\angle HGJ$
D. $\angle JGI$

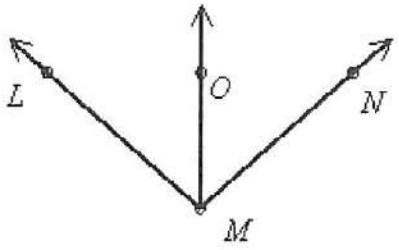
30. Supplementary angles are two angles whose measures have a sum of ____.
Complementary angles are two angles whose measures have a sum of ____.
A. 90; 180
B. 90; 45
C. 180; 360
D. 180; 90

31. The complement of an angle is 53°. What is the measure of the angle?
A. 37°
B. 137°
C. 47°
D. 127°

32. $\angle DFG$ and $\angle JKL$ are complementary angles. $m\angle DFG = x + 2$, and $m\angle JKL = x - 4$. Find the measure of each angle.
A. $\angle DFG = 48$, $\angle JKL = 42$
B. $\angle DFG = 48$, $\angle JKL = 52$
C. $\angle DFG = 46$, $\angle JKL = 44$
D. $\angle DFG = 46$, $\angle JKL = 54$

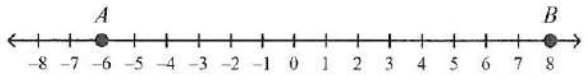
33. Angle A and angle B are a linear pair. If $m\angle A = 4m\angle B$, find $m\angle A$ and $m\angle B$.
A. 144, 36
B. 36, 144
C. 72, 18
D. 18, 72

34. $\overrightarrow{MO}$ bisects $\angle LMN$, $m\angle LMN = 5x - 22$, $m\angle LMO = x + 31$. Find $m\angle NMO$. The diagram is not to scale.



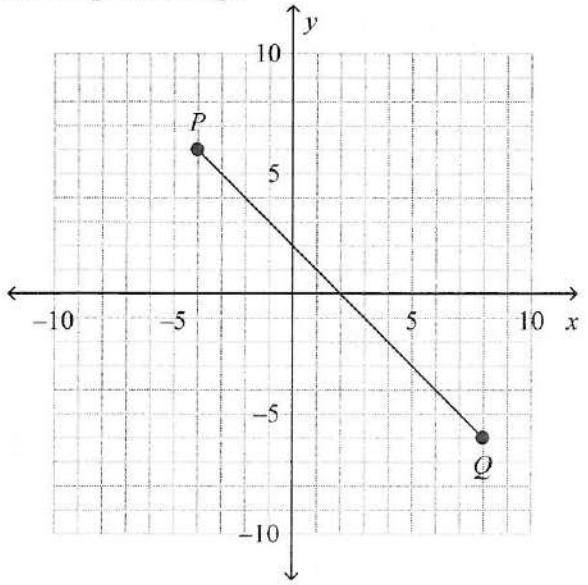
A. 88.5
B. 64
C. 59
D. 44.25

35. Which point is the midpoint of $\overline{AB}$?



A. –0.5
B. 2
C. 1
D. 3

36. Find the midpoint of $\overline{PQ}$.



A. (2, 0)
B. (2, 1)
C. (1, 1)
D. (1, 0)

37. Find the coordinates of the midpoint of the segment whose endpoints are $H(6, 4)$ and $K(2, 8)$.
A. (4, 4)
B. (2, 2)
C. (8, 12)
D. (4, 6)

38. $M(7, 5)$ is the midpoint of $\overline{RS}$. The coordinates of S are (8, 7). What are the coordinates of R?
A. (9, 9)
B. (6, 3)
C. (14, 10)
D. (7.5, 6)

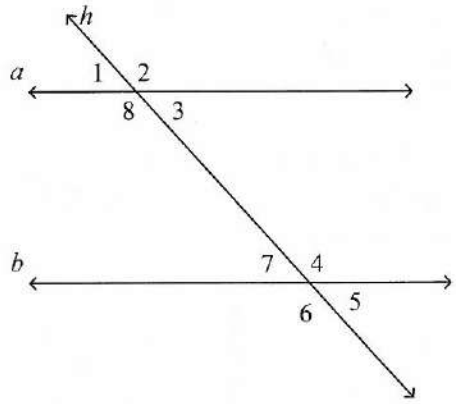
39. Find the distance between points $P(8, 2)$ and $Q(3, 8)$ to the nearest tenth.
A. 11
B. 7.8
C. 61
D. 14.9

40. The Frostburg-Truth bus travels from Frostburg Mall through the city's center to Sojourner Truth Park. The mall is 2 miles west and 2 miles south of the city's center. Truth Park is 4 miles east and 3 miles north of the city's center. How far is it from Truth Park to the mall to the nearest tenth of a mile?
    A. 2.8 miles
    B. 2.2 miles
    C. 7.8 miles
    D. 5 miles

41. Ken is adding a ribbon border to the edge of his kite. Two sides of the kite measure 9.5 inches, while the other two sides measure 17.8 inches. How much ribbon does Ken need?
    A. 45.1 in.
    B. 27.3 in.
    C. 54.6 in.
    D. 36.8 in.

42. Jose wants to put a fence around his rectangular garden. His garden measures 33 feet by 39 feet. The garden has a path around it that is 3 feet wide. How much fencing material does Jose need to enclose the garden and path?
    A. 120 ft
    B. 156 ft
    C. 168 ft
    D. 84 ft

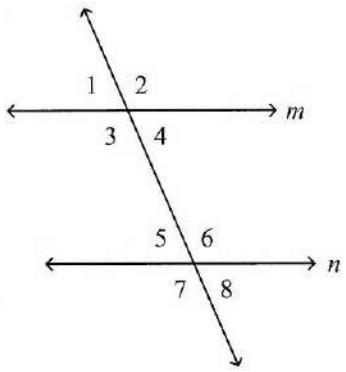
Use the diagram to find the following.



43. Identify a pair of alternate exterior angles.
    A. $\angle 1$ and $\angle 5$
    B. $\angle 8$ and $\angle 4$
    C. $\angle 2$ and $\angle 5$
    D. $\angle 1$ and $\angle 8$

44. What are three pairs of corresponding angles?
    A. angles 1 & 2, 3 & 8, and 4 & 7
    B. angles 3 & 4, 7 & 8, and 1 & 6
    C. angles 1 & 7, 2 & 4, and 6 & 7
    D. angles 1 & 7, 8 & 6, and 2 & 4

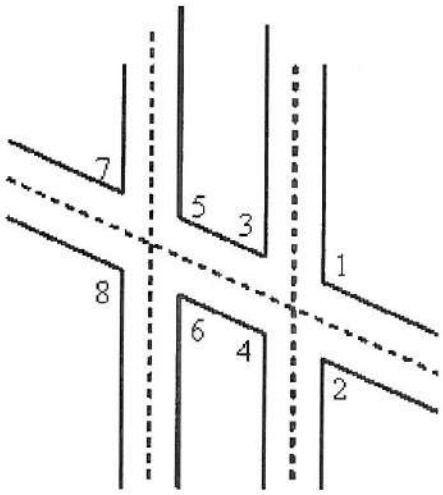
45. What is the relationship between $\angle 4$ and $\angle 5$?



    A. corresponding angles
    B. same-side interior angles
    C. alternate interior angles
    D. alternate exterior angles

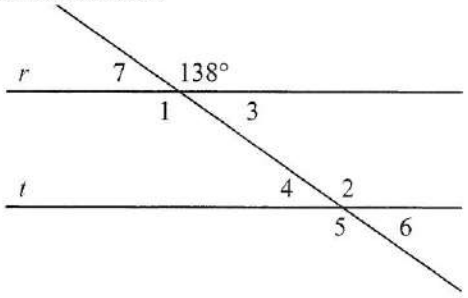
Name: _____ ID: A

This diagram of airport runway intersections shows two parallel runways. A taxiway crosses both runways.



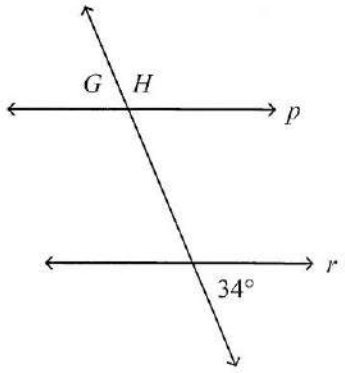
46. If $\angle 8$ measures 127, what is the sum of the measures of $\angle 1$ and $\angle 4$?
A. 254
B. 307
C. 127
D. 106

47. Line r is parallel to line t. Find $m\angle 6$. The diagram is not to scale.



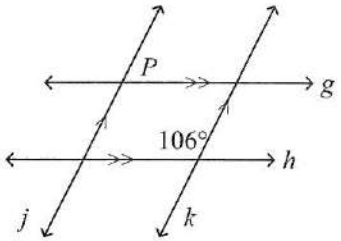
A. 32
B. 138
C. 142
D. 42

48. Find $m\angle G$. $p \parallel r$. The diagram is not to scale.



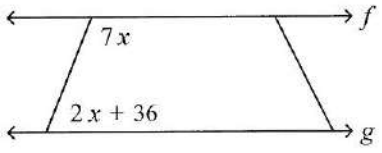
A. 34
B. 110
C. 104
D. 146

49. Find $m\angle P$. The diagram is not to scale.



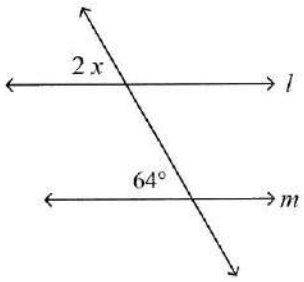
A. 106
B. 74
C. 64
D. 84

50. The expressions in the figure below represent the measures of two angles. Find the value of x. $f \parallel g$. The diagram is not to scale.



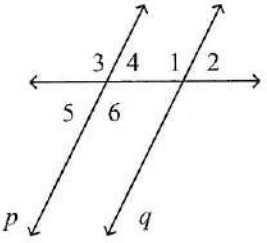
A. 15
B. 17
C. –16
D. 16

51. Find the value of x. $l \parallel m$. The diagram is not to scale.



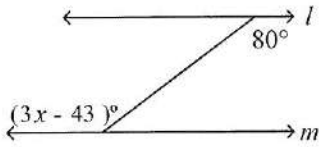
A. 148
B. 116
C. 64
D. 32

52. Find the value of x for which p is parallel to q, if $m\angle 1 = (9x)$ and $m\angle 3 = 117$. The diagram is not to scale.



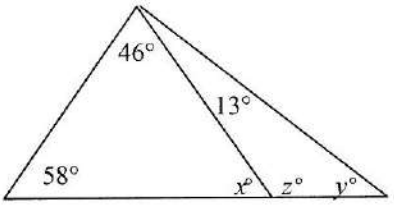
A. 108
B. 13
C. 117
D. 126

53. Find the value of x for which l is parallel to m. The diagram is not to scale.



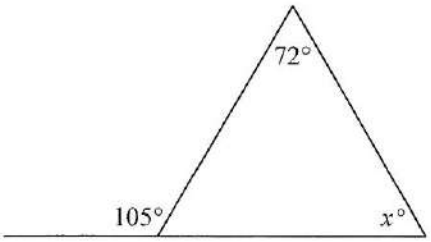
A. 100
B. 80
C. 123
D. 41

54. Find the values of x, y, and z. The diagram is not to scale.



A. $x = 63$, $y = 104$, $z = 76$
B. $x = 76$, $y = 63$, $z = 104$
C. $x = 63$, $y = 76$, $z = 104$
D. $x = 76$, $y = 104$, $z = 63$

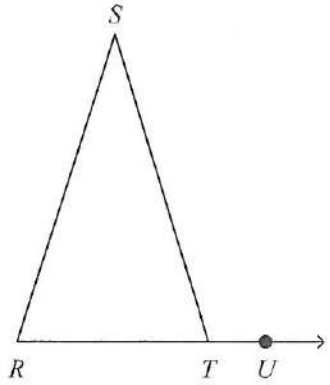
55. Find the value of x. The diagram is not to scale.



A. 33
B. 162
C. 147
D. 75

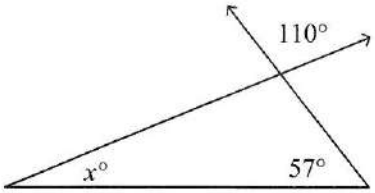
56. Find the value of x. The diagram is not to scale.

Given: $\angle SRT \cong \angle STR$, $m\angle SRT = 28$, $m\angle STU = 2x$



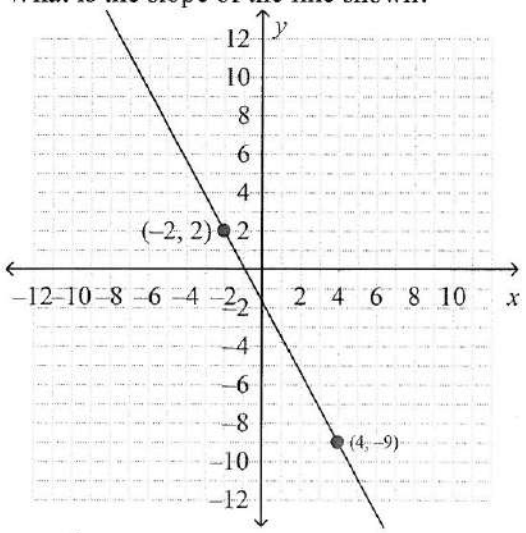
A. 28
B. 30
C. 14
D. 76

57. Find the value of x. The diagram is not to scale.



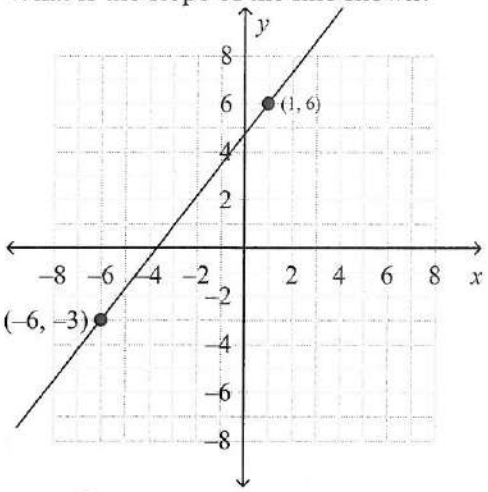
A. 33
B. 70
C. 23
D. 13

58. What is the slope of the line shown?



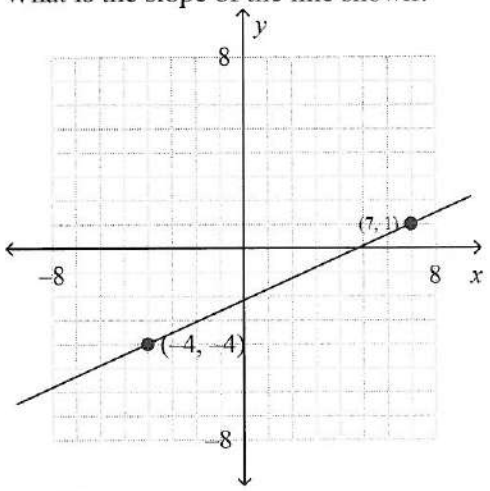
A. $\frac{6}{11}$
B. $-\frac{6}{11}$
C. $-\frac{11}{6}$
D. $\frac{11}{6}$

59. What is the slope of the line shown?



A. $-\frac{7}{9}$
B. $\frac{9}{7}$
C. $\frac{7}{9}$
D. $-\frac{9}{7}$

60. What is the slope of the line shown?



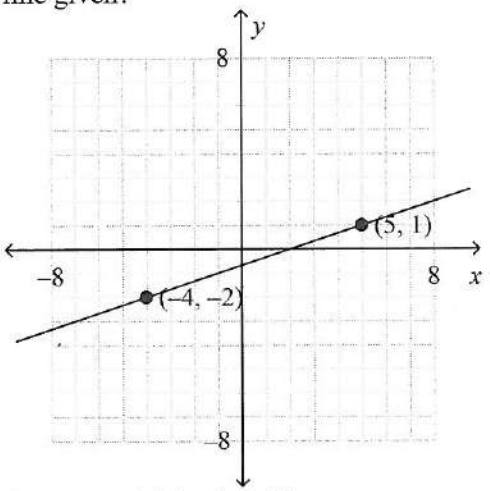
A. $\frac{13}{6}$

B. $\frac{5}{12}$

C. $\frac{5}{11}$

D. $\frac{11}{5}$

61. What is an equation in slope-intercept form for the line given?



A. $y = 1/3(x) + (-2/3)$

B. $y = 3(x) + (-10/3)$

C. $y = 3(x) + (-2/3)$

D. $y = 1/3(x) - (-4)$

62. Write the equation for the vertical line that contains point $E(-7, 7)$.

A. $y = 7$

B. $x = -7$

C. $y = -7$

D. $x = 7$

63. Write the equation for the horizontal line that contains point $G(3, 4)$.

A. $x = 4$

B. $y = 4$

C. $y = 3$

D. $x = 3$

64. Is the line through points $P(3, -5)$ and $Q(1, 4)$ parallel to the line through points $R(-1, 1)$ and $S(3, -3)$? Explain.

A. Yes; the lines have equal slopes.

B. No; the lines have unequal slopes.

C. No; one line has zero slope, the other has no slope.

D. Yes; the lines are both vertical.

65. What is the equation in point-slope form for the line parallel to $y = 5x - 4$ that contains $P(-6, 1)$?

A. $x - 1 = -5(y + 6)$

B. $y + 1 = 5(x + 6)$

C. $y - 1 = -5(x + 6)$

D. $y - 1 = 5(x + 6)$

66. What is the equation in point-slope form for the line parallel to $y = -2x + 10$ that contains $J(6, 8)$?

A. $y - 8 = -2(x - 6)$

B. $x - 8 = 2(y - 6)$

C. $y - 8 = 2(x - 6)$

D. $y + 8 = -2(x - 6)$

67. What is an equation in point-slope form for the line perpendicular to $y = 2x + 13$ that contains $(8, -4)$?

A. $y + 4 = -\frac{1}{2}(x - 8)$

B. $x + 4 = 2(y - 8)$

C. $y + 4 = 2(x - 8)$

D. $y + 8 = -\frac{1}{2}(x - 4)$

68. If $BCDE$ is congruent to $OPQR$, then $\overline{DE}$ is congruent to ___?___.

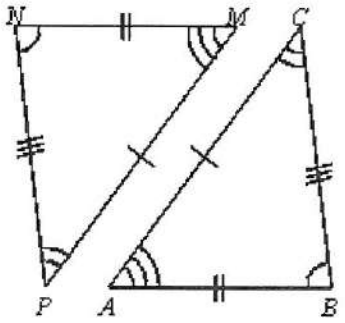
A. $\overline{PQ}$

B. $\overline{OR}$

C. $\overline{OP}$

D. $\overline{QR}$

69. $\angle ABC \cong$ ___?___



A. $\angle PMN$

B. $\angle NPM$

C. $\angle NMP$

D. $\angle MNP$

70. Given $\Delta QRS \cong \Delta TUV$, $QS = 3v + 2$, and $TV = 7v - 6$, find the length of QS and TV.

A. 2

B. 9

C. 8

D. 20

71. Given $\Delta ABC \cong \Delta PQR$, $m\angle B = 3v + 4$, and $m\angle Q = 8v - 6$, find $m\angle B$ and $m\angle Q$.

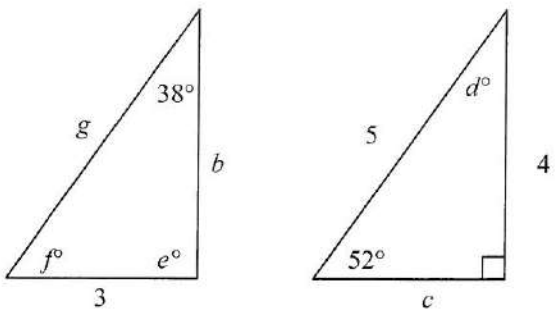
A. 22

B. 11

C. 10

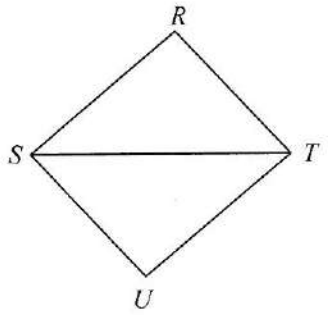
D. 25

72. The two triangles are congruent as suggested by their appearance. Find the value of c. The diagrams are not to scale.



A. 4 B. 5 C. 3 D. 38

73. Justify the last two steps of the proof.
Given: $\overline{RS} \cong \overline{UT}$ and $\overline{RT} \cong \overline{US}$
Prove: $\Delta RST \cong \Delta UTS$

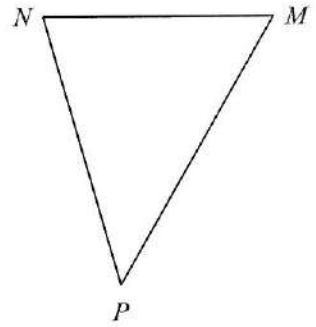


Proof:

1. $\overline{RS} \cong \overline{UT}$	1. Given
2. $\overline{RT} \cong \overline{US}$	2. Given
3. $\overline{ST} \cong \overline{TS}$	3. ___?___
4. $\Delta RST \cong \Delta UTS$	4. ___?___

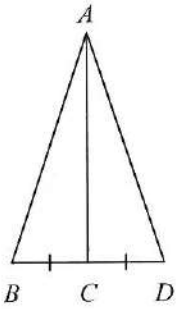
A. Symmetric Property of $\cong$; SSS
B. Reflexive Property of $\cong$; SAS
C. Reflexive Property of $\cong$; SSS
D. Symmetric Property of $\cong$; SAS

74. Name the angle included by the sides $\overline{PN}$ and $\overline{NM}$.



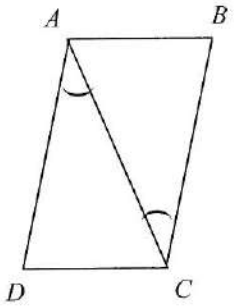
A. $\angle N$
B. $\angle P$
C. $\angle M$
D. none of these

75. What other information do you need in order to prove the triangles congruent using the SAS Congruence Postulate?



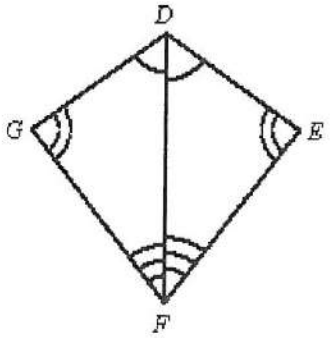
A. $\angle BAC \cong \angle DAC$
B. $\overline{AC} \perp \overline{BD}$
C. $\angle CBA \cong \angle CDA$
D. $\overline{AC} \cong \overline{BD}$

76. What else must you know to prove the triangles congruent by ASA? By SAS?



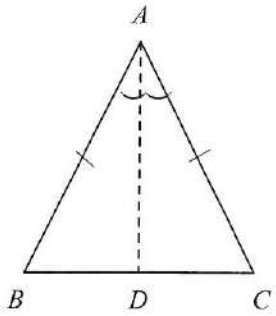
A. $\angle ACD \cong \angle CAB$; $\overline{AB} \cong \overline{CD}$
B. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$
C. $\angle ADC \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$
D. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{AC}$

77. From the information in the diagram, can you prove $\Delta FDG \cong \Delta FDE$? Explain.



A. yes, by ASA
B. yes, by AAA
C. yes, by SAS
D. no

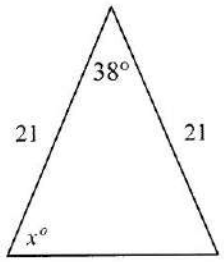
78. Supply the reasons missing from the proof shown below.
Given: $\overline{AB} \cong \overline{AC}$, $\angle BAD \cong \angle CAD$
Prove: $\overline{AD}$ bisects $\overline{BC}$



Statements	Reasons
1. $\overline{AB} \cong \overline{AC}$	1. Given
2. $\angle BAD \cong \angle CAD$	2. Given
3. $\overline{AD} \cong \overline{AD}$	3. Reflexive Property
4. $\Delta BAD \cong \Delta CAD$	4. ___?___
5. $\overline{BD} \cong \overline{CD}$	5. ___?___
6. $\overline{AD}$ bisects $\overline{BC}$	6. Definition of segment bisector

A. ASA; Corresp. parts of $\cong \Delta$ are $\cong$.
B. SAS; Reflexive Property
C. SSS; Reflexive Property
D. SAS; Corresp. parts of $\cong \Delta$ are $\cong$.

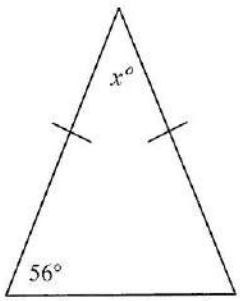
79. What is the value of x?



Drawing not to scale

A. 71°
B. 142°
C. 152°
D. 76°

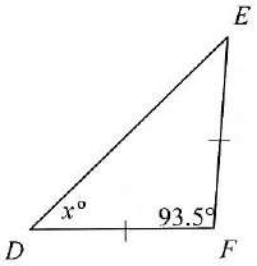
80. What is the value of x?



Drawing not to scale

A. 68°
B. 62°
C. 112°
D. 124°

81. What is the value of x?

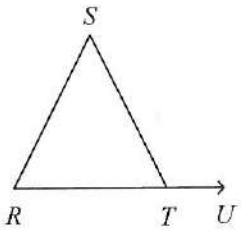


Drawing not to scale

A. 86.5°
B. 43.25°
C. 133.25°
D. 46.75°

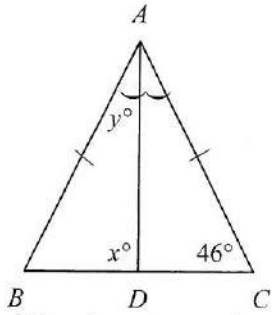
82. Find the value of x. The diagram is not to scale.

Given: $\overline{RS} \cong \overline{ST}$, $m\angle RST = 7x - 54$, $m\angle STU = 8x$



A. 14
B. 152
C. 16
D. 19

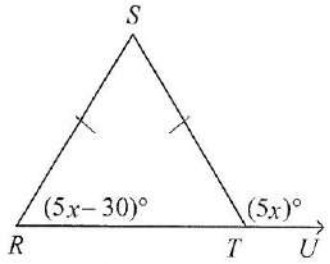
83. Find the values of x and y.



Drawing not to scale

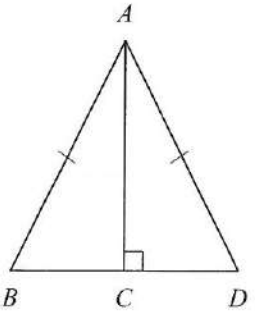
A. $x = 44,\ y = 46$
B. $x = 46, y = 44$
C. $x = 90, y = 44$
D. $x = 90,\ y = 46$

84. Find the value of x. The diagram is not to scale.



A. $x = 60$
B. $x = 21$
C. $x = 15$
D. none of these

85. Is there enough information to conclude that the two triangles are congruent? If so, what is a correct congruence statement?

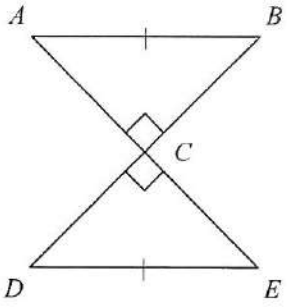


A. Yes; $\Delta CAB \cong \Delta DAC$.
B. Yes; $\Delta ACB \cong \Delta ACD$.
C. Yes; $\Delta ABC \cong \Delta ACD$.
D. No, the triangles cannot be proven congruent.

86. $\overline{RQ}$ is a perpendicular bisector to $\overline{PS}$ at Q between P and S. $\angle SPR \cong \angle PSR$. By which of the five congruence statements, HL, AAS, ASA, SAS, and SSS, can you immediately conclude that $\Delta PQR \cong \Delta SQR$?

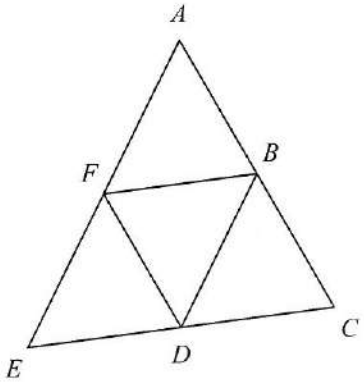
A. HL, AAS, ASA, SAS, and SSS
B. HL and AAS
C. HL, AAS, and ASA
D. HL and ASA

87. What additional information will allow you to prove the triangles congruent by the HL Theorem?



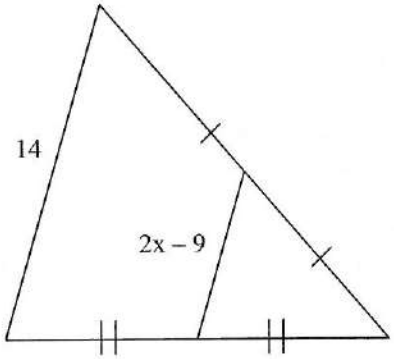
A. $\angle A \cong \angle E$
B. $m\angle BCE = 90$
C. $\overline{AC} \cong \overline{DC}$
D. $\overline{AC} \cong \overline{BD}$

88. Points B, D, and F are midpoints of the sides of ΔACE. $EC = 30$ and $DF = 17$. Find AC. The diagram is not to scale.



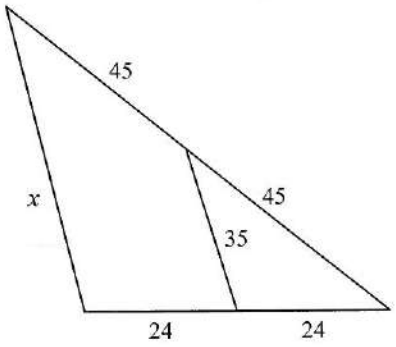
A. 60
B. 30
C. 34
D. 8.5

89. Find the value of x.



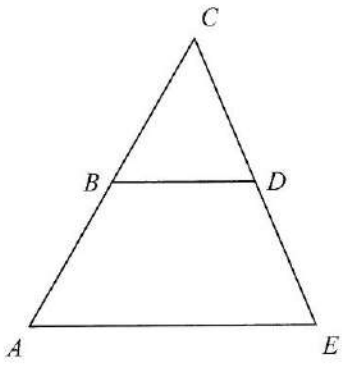
A. 7
B. 11.5
C. 8
D. 10

90. Find the value of x. The diagram is not to scale.



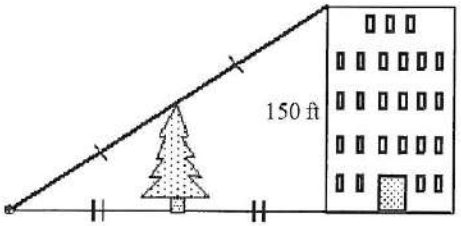
A. 90
B. 70
C. 35
D. 48

91. B is the midpoint of $\overline{AC}$, D is the midpoint of $\overline{CE}$, and $AE = 21$. Find BD. The diagram is not to scale.



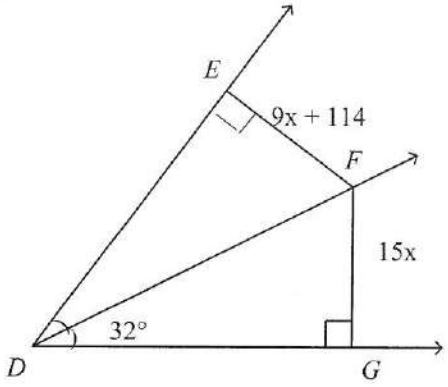
A. 42
B. 21
C. 11.5
D. 10.5

92. Use the information in the diagram to determine the height of the tree. The diagram is not to scale.



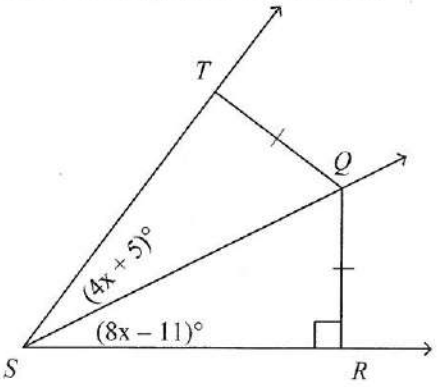
A. 75 ft
B. 150 ft
C. 35.5 ft
D. 37.5 ft

93. $\overrightarrow{DF}$ bisects $\angle EDG$. Find the value of x. The diagram is not to scale.



A. 285
B. $\frac{4}{19}$
C. 32
D. 19

94. Q is equidistant from the sides of $\angle TSR$. Find $m\angle RST$. The diagram is not to scale.

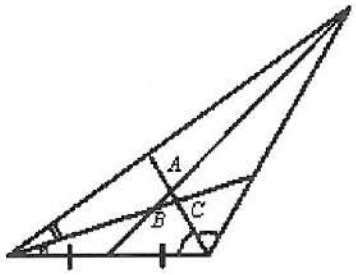


A. 21
B. 42
C. 4
D. 8

95. Find the circumcenter of ΔEFG with $E(4, 4)$, $F(4, 2)$, and $G(8, 2)$.
A. (6, 3)
B. (4, 2)
C. (4, 4)
D. (3, 6)

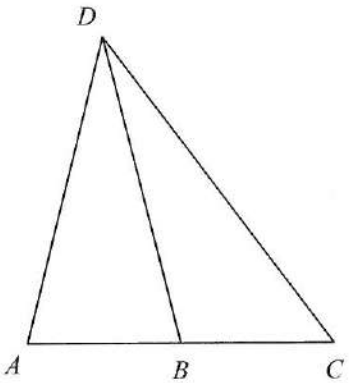
96. Where is the circumcenter of any given triangle?
A. the point of concurrency of the altitudes of the triangle
B. the point of concurrency of the perpendicular bisectors of the sides of the triangle
C. the point of concurrency of the bisectors of the angles of the triangle
D. the point of concurrency of the medians of the triangle

97. Name the point of concurrency of the angle bisectors.



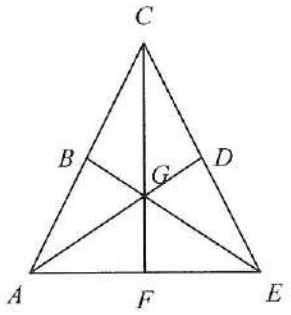
A. A B. B C. C D. not shown

98. Find the length of $\overline{AB}$, given that $\overline{DB}$ is a median of the triangle and $AC = 26$.



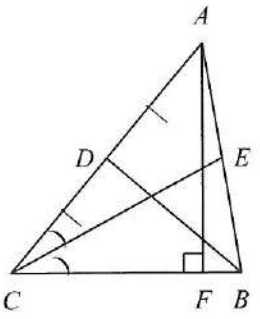
A. 13
B. 26
C. 52
D. not enough information

99. In ΔACE, G is the centroid and $BE = 18$. Find BG and GE.



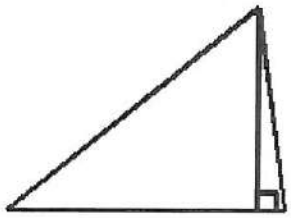
A. $BG = 6, GE = 12$
B. $BG = 12, GE = 6$
C. $BG = 4\frac{1}{2}, GE = 13\frac{1}{2}$
D. $BG = 9, GE = 9$

100. Name a median for ΔABC.



A. $\overline{AD}$
B. $\overline{CE}$
C. $\overline{AF}$
D. $\overline{BD}$

101. What is the name of the segment inside the large triangle?



A. altitude
B. perpendicular bisector
C. angle bisector
D. median

102. For a triangle, list the respective names of the points of concurrency of
• perpendicular bisectors of the sides
• bisectors of the angles
• medians
• lines containing the altitudes

A. incenter
circumcenter
centroid
orthocenter

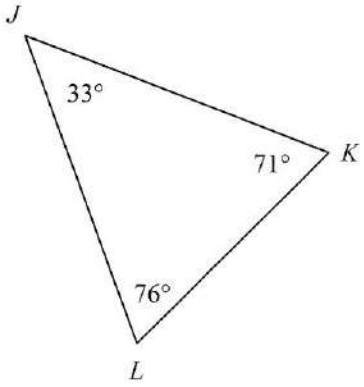
B. circumcenter
incenter
centroid
orthocenter

C. circumcenter
incenter
orthocenter
centroid

D. incenter
circumcenter
orthocenter
centroid

103. What is the negation of this statement?
Miguel has three cats.
A. Miguel does not like cats.
B. The cat has three owners.
C. Miguel does not have three cats.
D. Miguel has no cats.

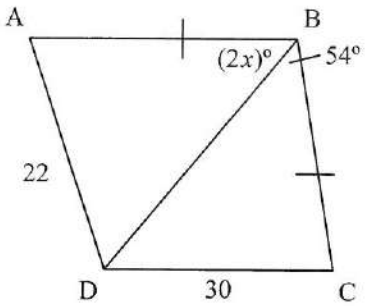
104. List the sides in order from shortest to longest. The diagram is not to scale.



A. $\overline{JK}, \overline{LJ}, \overline{LK}$
B. $\overline{LK}, \overline{LJ}, \overline{JK}$
C. $\overline{JK}, \overline{LK}, \overline{LJ}$
D. $\overline{LK}, \overline{JK}, \overline{LJ}$

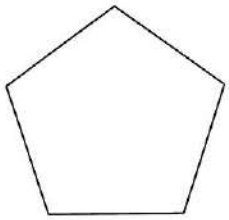
105. Two sides of a triangle have lengths 10 and 15. What must be true about the length of the third side?
A. less than 25
B. less than 10
C. less than 15
D. less than 5

106. What is the range of possible values for x?
The diagram is not to scale.



A. $0 < x < 54$
B. $0 < x < 108$
C. $0 < x < 27$
D. $27 < x < 180$

107. Find the sum of the measures of the angles of the figure.



A. 1260
B. 900
C. 540
D. 720

108. The sum of the angle measures of a polygon with s sides is 2340. Find s.

A. 13
B. 14
C. 17
D. 15

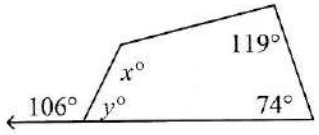
109. What is the measure of one angle in a regular 30-gon?

A. 192
B. 84
C. 168
D. 5040

110. A road sign is in the shape of a regular pentagon. What is the measure of each angle on the sign? Round to the nearest tenth.

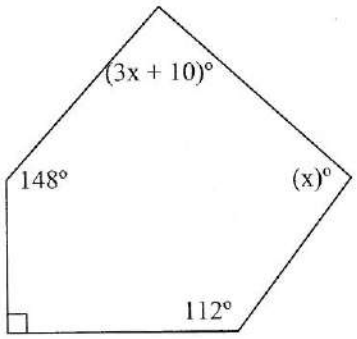
A. 252
B. 540
C. 54
D. 108

111. Find the missing values of the variables. The diagram is not to scale.



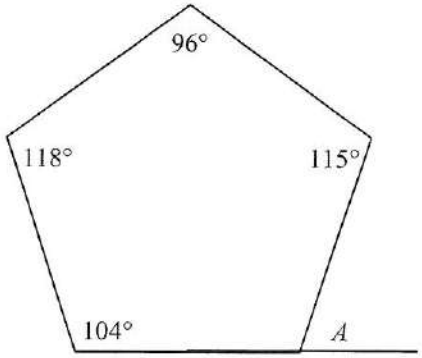
A. $x = 74, y = 103$
B. $x = 74, y = 93$
C. $x = 93, y = 74$
D. $x = 103, y = 119$

112. Find the value of x. The diagram is not to scale.



A. 90
B. 45
C. 35
D. 145

113. Find $m\angle A$. The diagram is not to scale.



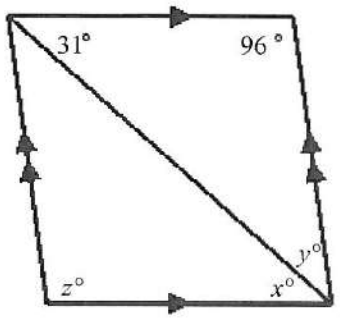
A. 107
B. 117
C. 63
D. 73

114. The sum of the measures of two exterior angles of a triangle is 264. What is the measure of the third exterior angle?
A. 96
B. 84
C. 106
D. 86

115. How many sides does a regular polygon have if each exterior angle measures 30?
A. 15 sides
B. 12 sides
C. 14 sides
D. 11 sides

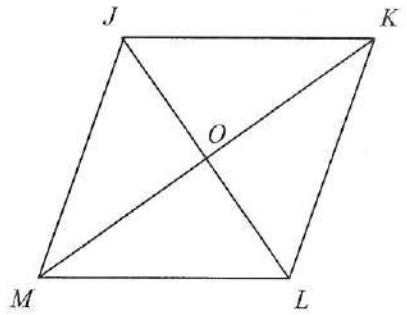
116. A nonregular hexagon has five exterior angle measures of 55, 58, 69, 57, and 55. What is the measure of the interior angle adjacent to the sixth exterior angle?
A. 104
B. 66
C. 114
D. 124

117. Find the values of the variables in the parallelogram. The diagram is not to scale.



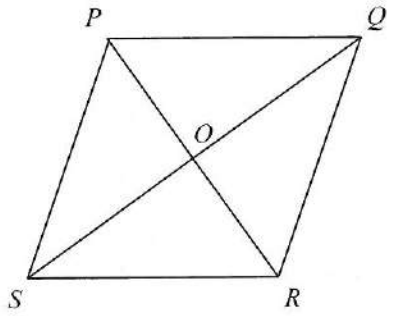
A. $x = 53, y = 31, z = 96$
B. $x = 53, y = 53, z = 127$
C. $x = 31, y = 53, z = 96$
D. $x = 31, y = 53, z = 127$

118. In the parallelogram, $m\angle KLO = 78$ and $m\angle MLO = 42$. Find $m\angle KJM$. The diagram is not to scale.



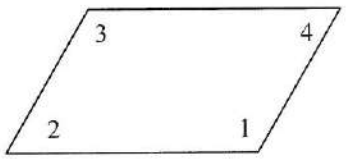
A. 110
B. 120
C. 78
D. 60

119. In the parallelogram, $m\angle QRP = 32$ and $m\angle PRS = 84$. Find $m\angle PQR$. The diagram is not to scale.



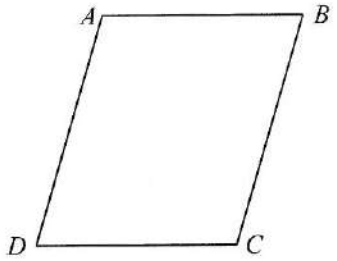
A. 84
B. 116
C. 32
D. 64

120. For the parallelogram, if $m\angle 2 = 4x - 20$ and $m\angle 4 = 3x - 11$, find $m\angle 1$. The diagram is not to scale.



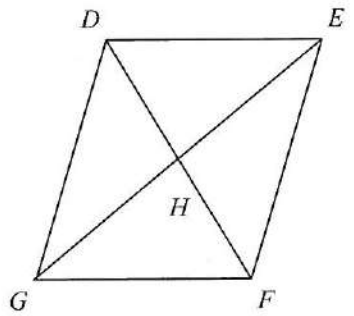
A. 9
B. 16
C. 164
D. 174

121. $ABCD$ is a parallelogram. If $m\angle CDA = 63$, then $m\angle ABC =$ ___?___. The diagram is not to scale.



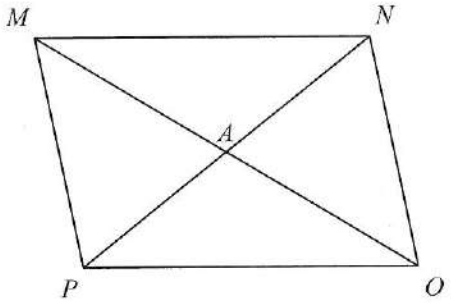
A. 117
B. 127
C. 78
D. 63

122. In parallelogram $DEFG$, $DH = x + 2$, $HF = 2y$, $GH = 4x - 3$, and $HE = 5y + 1$. Find the values of x and y. The diagram is not to scale.



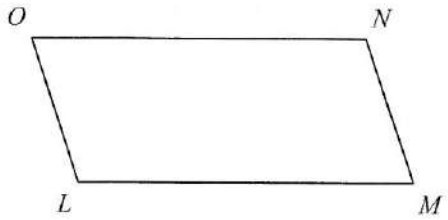
A. $x = 8, y = 5$
B. $x = 5, y = 8$
C. $x = 4, y = 6$
D. $x = 6, y = 4$

123. Find AM in the parallelogram if $PN = 15$ and $AO = 6$. The diagram is not to scale.



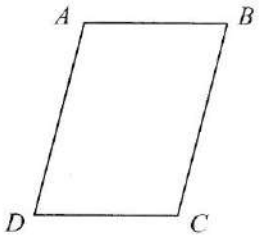
A. 12
B. 6
C. 15
D. 7.5

124. *LMNO* is a parallelogram. If $NM = x + 5$ and $OL = 2x + 3$, find the value of x and then find NM and OL.



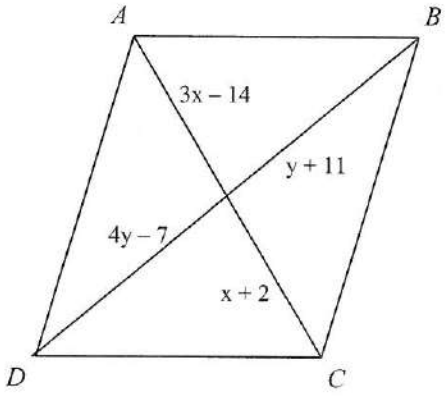
A. $x = 4, NM = 9, OL = 9$
B. $x = 2, NM = 7, OL = 7$
C. $x = 2, NM = 9, OL = 7$
D. $x = 4, NM = 7, OL = 9$

125. If $m\angle B = m\angle D = 46$, find $m\angle C$ so that quadrilateral *ABCD* is a parallelogram. The diagram is not to scale.



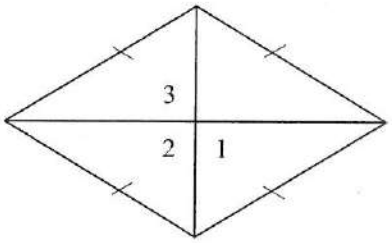
A. 46
B. 92
C. 134
D. 268

126. Find values of x and y for which *ABCD* must be a parallelogram. The diagram is not to scale.



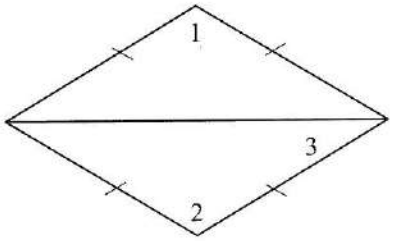
A. $x = 8, y = 6$
B. $x = 6, y = 8$
C. $x = 8, y = 17$
D. $x = 8, y = 10$

127. In the rhombus, $m\angle 1 = 15x$, $m\angle 2 = x + y$, and $m\angle 3 = 30z$. Find the value of each variable. The diagram is not to scale.



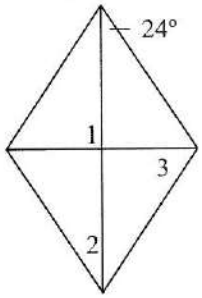
A. $x = 12, y = 84, z = 6$
B. $x = 12, y = 174, z = 3$
C. $x = 6, y = 84, z = 3$
D. $x = 6, y = 174, z = 6$

128. In the rhombus, $m\angle 1 = 140$. What are $m\angle 2$ and $m\angle 3$? The diagram is not to scale.



A. $m\angle 2 = 40,\ m\angle 3 = 70$
B. $m\angle 2 = 140,\ m\angle 3 = 20$
C. $m\angle 2 = 40,\ m\angle 3 = 20$
D. $m\angle 2 = 140,\ m\angle 3 = 70$

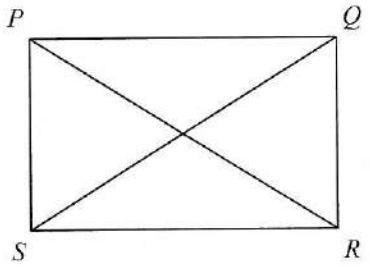
129. Find the measure of the numbered angles in the rhombus. The diagram is not to scale.



A. $m\angle 1 = 90$, $m\angle 2 = 24$, and $m\angle 3 = 78$
B. $m\angle 1 = 90$, $m\angle 2 = 66$, and $m\angle 3 = 24$
C. $m\angle 1 = 90$, $m\angle 2 = 24$, and $m\angle 3 = 24$
D. $m\angle 1 = 90$, $m\angle 2 = 24$, and $m\angle 3 = 66$

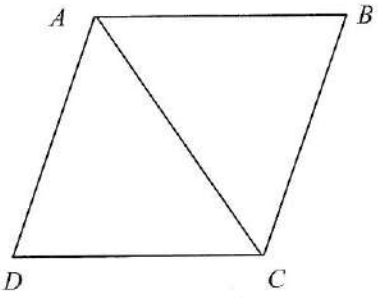
130. $DEFG$ is a rectangle. $DF = 5x - 3$ and $EG = x + 5$. Find the value of x and the length of each diagonal.
A. $x = 1, DF = 6, EG = 6$
B. $x = 2, DF = 7, EG = 12$
C. $x = 2, DF = 6, EG = 6$
D. $x = 2, DF = 7, EG = 7$

131. In rectangle $PQRS$, $PR = 18x - 28$ and $QS = x + 380$. Find the value of x and the length of each diagonal.



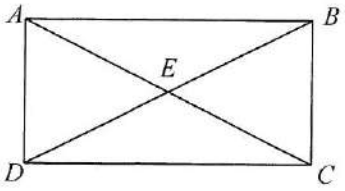
A. $x = 24, PR = 202, QS = 202$
B. $x = 12, PR = 392, QS = 392$
C. $x = 24, PR = 404, QS = 404$
D. $x = 25, PR = 422, QS = 422$

132. In quadrilateral $ABCD$, $m\angle ACD = 2x + 4$ and $m\angle ACB = 5x - 8$. For what value of x is $ABCD$ a rhombus?



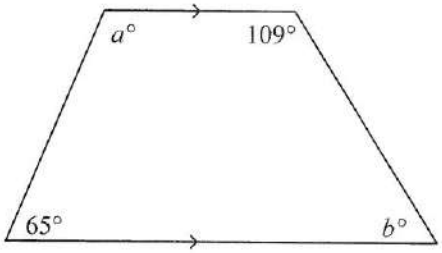
A. 3
B. 4
C. 5
D. 6

133. In quadrilateral $ABCD$, $AE = x + 6$ and $BE = 3x - 18$. For what value of x is $ABCD$ a rectangle?



A. 18
B. 12
C. 16
D. 14

134. Find the values of a and b. The diagram is not to scale.

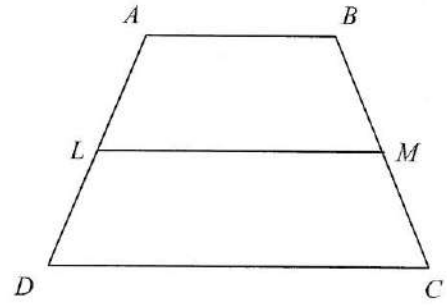


A. $a = 115, b = 71$
B. $a = 115, b = 65$
C. $a = 109, b = 71$
D. $a = 109, b = 65$

135. $\angle J$ and $\angle M$ are base angles of isosceles trapezoid $JKLM$. If $m\angle J = 18x + 8$, and $m\angle M = 11x + 15$, find $m\angle K$.

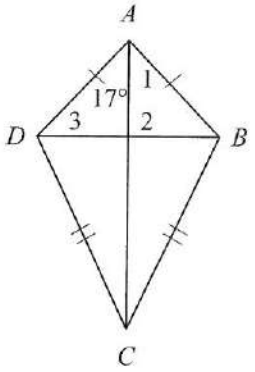
A. 1
B. 154
C. 77
D. 26

136. $\overline{LM}$ is the midsegment of $\square ABCD$. $AB = x + 8$, $LM = 4x + 3$, and $DC = 243$. What is the value of x?



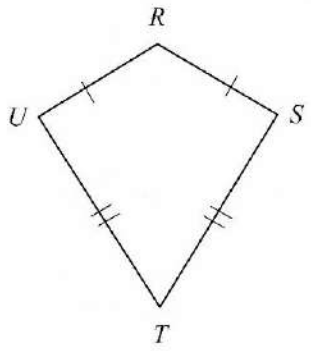
A. 43
B. 35
C. 286
D. 39

137. Find $m\angle 1$ and $m\angle 3$ in the kite. The diagram is not to scale.



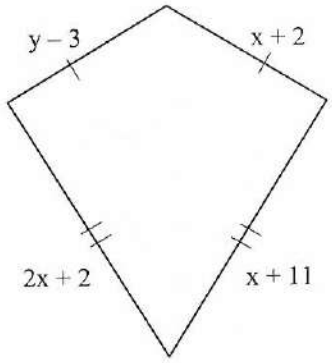
A. $m\angle 1 = 17, m\angle 3 = 73$
B. $m\angle 1 = 17, m\angle 3 = 17$
C. $m\angle 1 = 73, m\angle 3 = 17$
D. $m\angle 1 = 73, m\angle 3 = 73$

138. $m\angle R = 120$ and $m\angle S = 110$. Find $m\angle T$. The diagram is not to scale.



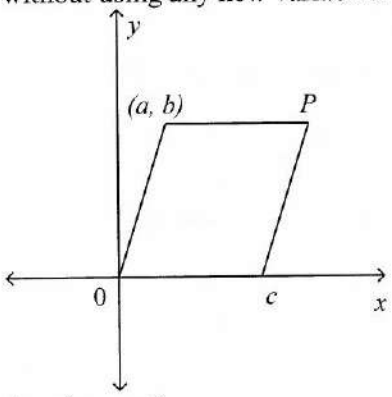
A. 60
B. 10
C. 110
D. 20

139. Find the values of the variables and the lengths of the sides of this kite.



A. $x = 9, y = 14$; 11, 20
B. $x = 14, y = 9$; 11, 11
C. $x = 14, y = 9$; 6, 16
D. $x = 9, y = 14$; 6, 16

140. For the parallelogram, find coordinates for P without using any new variables.



A. $(a - c, c)$
B. (c, a)
C. $(a + c, b)$
D. (c, b)