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

Geometry 1st Semester Exam Review

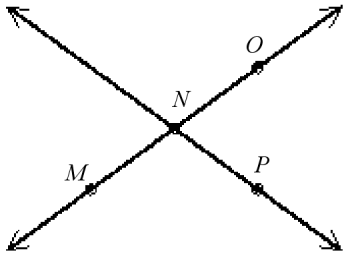
____ 1. Based on the pattern, what are the next two terms of the sequence?
9, 15, 21, 27, . . .
a. 33, 972 b. 39, 45 c. 162, 972 d. 33, 39

____ 2. According to the pattern, make a conjecture about the product of 13 and 8,888,888.
$13 \cdot 88 = 1144$
$13 \cdot 888 = 11{,}544$
$13 \cdot 8888 = 115{,}544$
$13 \cdot 88{,}888 = 1{,}155{,}544$

a. 115,555,544
b. 1,115,555,444
c. 1,155,555,544
d. 11,155,555,444

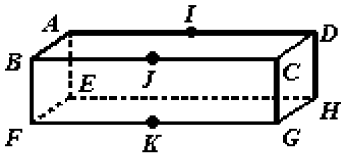
____ 3. Find a counterexample to show that the conjecture is false.
Conjecture: Any number that is divisible by 4 is also divisible by 8.
a. 24 b. 40 c. 12 d. 26

____ 4. Are *O*, *N*, and *P* collinear? If so, name the line on which they lie.



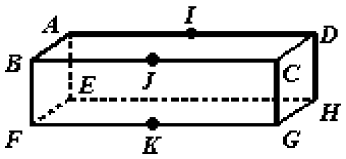
a. No, the three points are not collinear.
b. Yes, they lie on the line *MP*.
c. Yes, they lie on the line *NP*.
d. Yes, they lie on the line *MO*.

____ 5. Name the plane represented by the front of the box.



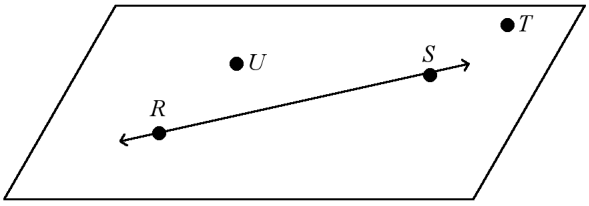
a. *FBC* b. *BAD* c. *FEC* d. *FKG*

____ 6. Are points *B*, *J*, and *C* collinear or noncollinear?



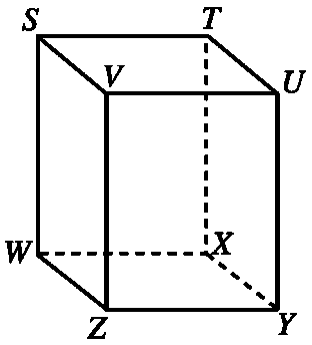
a. collinear b. noncollinear c. impossible to tell

____ 7. Name the line and plane shown in the diagram.



a. $\overleftrightarrow{RS}$ and plane *RSU*
b. line *R* and plane *RSU*
c. $\overleftrightarrow{RS}$ and plane *UR*
d. $\overleftrightarrow{SR}$ and plane *UT*

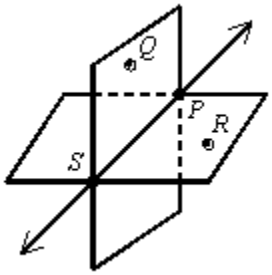
____ 8. What is the intersection of plane *TUYX* and plane *VUYZ*?



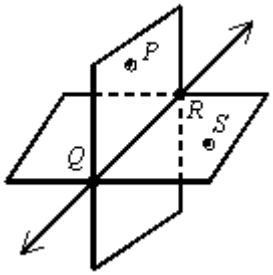
a. $\overleftrightarrow{UY}$ b. $\overleftrightarrow{SW}$ c. $\overleftrightarrow{TX}$ d. $\overleftrightarrow{VZ}$

____ 9. Which diagram shows plane *PQR* and plane *QRS* intersecting only in $\overleftrightarrow{QR}$?

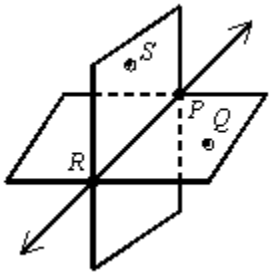
a.



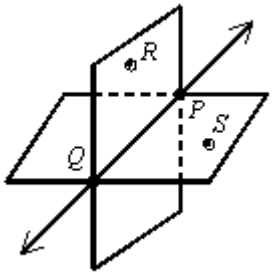
c.



b.



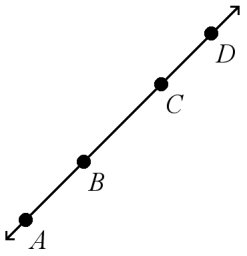
d.



____ 10. Name the ray in the figure.

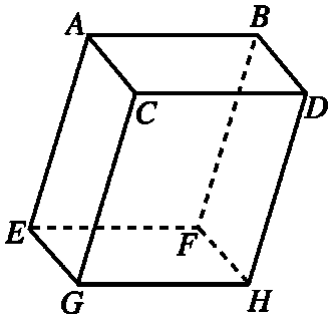
a. $\overrightarrow{BA}$ b. $\overleftrightarrow{AB}$ c. $\overline{BA}$ d. $\overrightarrow{AB}$

____ 11. Name the ray that is opposite $\overrightarrow{BA}$.



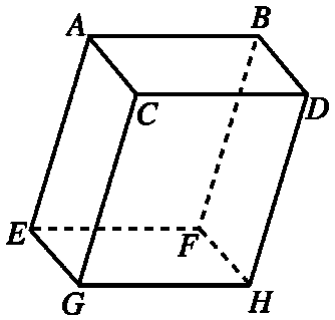
a. $\overrightarrow{BD}$ b. $\overrightarrow{BA}$ c. $\overrightarrow{CA}$ d. $\overrightarrow{DA}$

____ 12. Name the three labeled segments that are parallel to $\overline{EF}$.



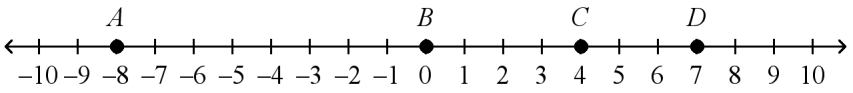
a. $\overline{AB}$, $\overline{CD}$, $\overline{GH}$ b. $\overline{GH}$, $\overline{EG}$, $\overline{CD}$ c. $\overline{BF}$, $\overline{AB}$, $\overline{CD}$, d. $\overline{AC}$, $\overline{CD}$, $\overline{GH}$

____ 13. Which plane is parallel to plane *EFHG*?



a. plane *ABDC* b. plane *ACGE* c. plane *CDHG* d. plane *BDHF*

____ 14. Find AC.

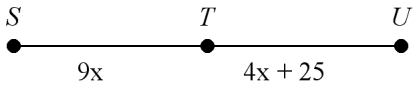


a. 14 b. 15 c. 12 d. 4

____ 15. If $EF = 2x - 12$, $FG = 3x - 15$, and $EG = 23$, find the values of x, EF, and FG. The drawing is not to scale.

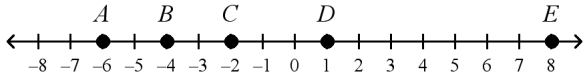
a. $x = 10$, $EF = 8$, $FG = 15$
b. $x = 3$, $EF = -6$, $FG = -6$
c. $x = 10$, $EF = 32$, $FG = 45$
d. $x = 3$, $EF = 8$, $FG = 15$

____ 16. If T is the midpoint of $\overline{SU}$, find the values of x and ST. The diagram is not to scale.



a. $x = 5$, $ST = 45$
b. $x = 5$, $ST = 60$
c. $x = 10$, $ST = 60$
d. $x = 10$, $ST = 45$

____ 17. Which point is the midpoint of $\overline{AE}$?



a. D b. B c. not B, C, or D d. C

____ 18. Which angle is a right angle?

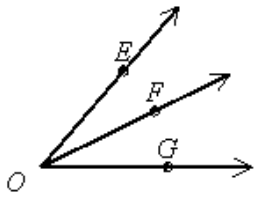
a.

b.

c.

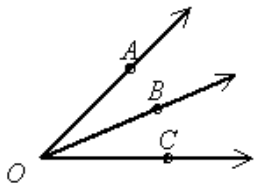
d.

____ 19. If $m\angle EOF = 26$ and $m\angle FOG = 38$, then what is the measure of $\angle EOG$? The diagram is not to scale.



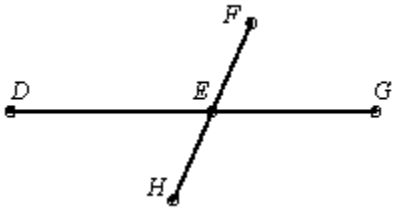
a. 64 b. 12 c. 52 d. 76

____ 20. If $m\angle BOC = 27$ and $m\angle AOC = 47$, then what is the measure of $\angle AOB$? The diagram is not to scale.



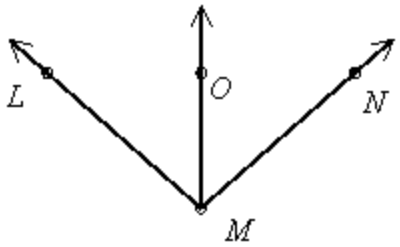
a. 74 b. 40 c. 20 d. 54

____ 21. If $m\angle DEF = 122$, then what are $m\angle FEG$ and $m\angle HEG$? The diagram is not to scale.



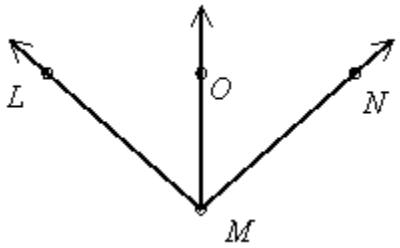
a. $m\angle FEG = 122$, $m\angle HEG = 58$
b. $m\angle FEG = 58$, $m\angle HEG = 132$
c. $m\angle FEG = 68$, $m\angle HEG = 122$
d. $m\angle FEG = 58$, $m\angle HEG = 122$

____ 22. $\overrightarrow{MO}$ bisects $\angle LMN$, $m\angle LMO = 8x - 23$, and $m\angle NMO = 2x + 37$. Solve for x and find $m\angle LMN$. The diagram is not to scale.



a. $x = 9$, $m\angle LMN = 98$
b. $x = 9$, $m\angle LMN = 49$
c. $x = 10$, $m\angle LMN = 114$
d. $x = 10$, $m\angle LMN = 57$

____ 23. $\overrightarrow{MO}$ bisects $\angle LMN$, $m\angle LMN = 5x - 23$, $m\angle LMO = x + 32$. Find $m\angle NMO$. The diagram is not to scale.

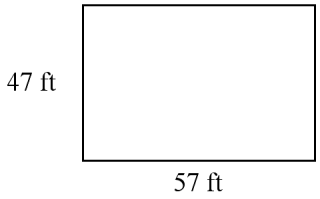


a. 61
b. 45.75
c. 91.5
d. 66

____ 24. 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

____ 25. Find the coordinates of the midpoint of the segment whose endpoints are $H(8, 2)$ and $K(6, 10)$.
a. (7, 6)
b. (1, 4)
c. (14, 12)
d. (2, 8)

____ 26. Find the perimeter of the rectangle. The drawing is not to scale.

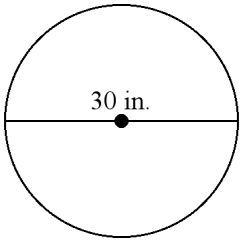


a. 151 feet b. 208 feet c. 161 feet d. 104 feet

____ 27. Find the area of a rectangle with base 2 yd and height 5 ft.

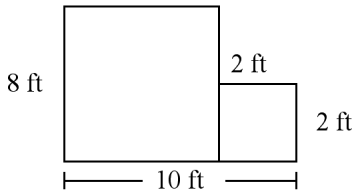
a. $10\ \text{yd}^2$ b. $30\ \text{ft}^2$ c. $10\ \text{ft}^2$ d. $30\ \text{yd}^2$

____ 28. Find the area of the circle in terms of π.



a. 30π in.^{2} b. 900π in.^{2} c. 60π in.^{2} d. 225π in.^{2}

____ 29. The figure is formed from rectangles. Find the total area. The diagram is not to scale.



a. $104\ \text{ft}^2$ b. $36\ \text{ft}^2$ c. $80\ \text{ft}^2$ d. $68\ \text{ft}^2$

____ 30. Identify the hypothesis and conclusion of this conditional statement:
If two lines intersect at right angles, then the two lines are perpendicular.
a. Hypothesis: The two lines are perpendicular. Conclusion:
Two lines intersect at right angles.
b. Hypothesis: Two lines intersect at right angles. Conclusion:
The two lines are perpendicular.
c. Hypothesis: The two lines are not perpendicular. Conclusion:
Two lines intersect at right angles.
d. Hypothesis: Two lines intersect at right angles. Conclusion:
The two lines are not perpendicular.

____ 31. Write this statement as a conditional in *if-then* form:
All triangles have three sides.
a. If a triangle has three sides, then all triangles have three sides.
b. If a figure has three sides, then it is not a triangle.
c. If a figure is a triangle, then all triangles have three sides.
d. If a figure is a triangle, then it has three sides.

____ 32. Another name for an *if-then* statement is a ____. Every conditional has two parts. The part following *if* is the ____ and the part following *then* is the ____.
a. conditional; conclusion; hypothesis
b. hypothesis; conclusion; conditional
c. conditional; hypothesis; conclusion
d. hypothesis; conditional; conclusion

____ 33. A conditional can have a ____ of *true* or *false.*
a. hypothesis b. truth value c. counterexample d. conclusion

____ 34. What is the converse of the following conditional?
If a point is in the first quadrant, then its coordinates are positive.
a. If a point is in the first quadrant, then its coordinates are positive.
b. If a point is not in the first quadrant, then
the coordinates of the point are not positive.
c. If the coordinates of a point are positive, then the point is in the first quadrant.
d. If the coordinates of a point are not positive, then
the point is not in the first quadrant.

____ 35. When a conditional and its converse are true, you can combine them as a true ____.

a. counterexample
b. biconditional
c. unconditional
d. hypothesis

____ 36. Use the Law of Detachment to draw a conclusion from the two given statements.

If two angles are congruent, then they have equal measures.

$\angle P$ and $\angle Q$ are congruent.

a. $m\angle P + m\angle Q = 90$
b. $m\angle P = m\angle Q$
c. $\angle P$ is the complement of $\angle Q$.
d. $m\angle P \neq m\angle Q$

____ 37. Use the Law of Detachment to draw a conclusion from the two given statements. If not possible, write *not possible*.

I can go to the concert if I can afford to buy a ticket.
I can go to the concert.

a. I can afford to buy a ticket.
b. I cannot afford to buy the ticket.
c. If I can go to the concert, I can afford the ticket.
d. not possible

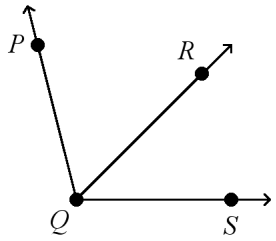
____ 38. Use the Law of Syllogism to draw a conclusion from the two given statements.

If a number is a multiple of 64,then it is a multiple of 8.
If a number is a multiple of 8, then it is a multiple of 2.

a. If a number is a multiple of 64, then it is a multiple of 2.
b. The number is a multiple of 2.
c. The number is a multiple of 8.
d. If a number is not a multiple of 2, then the number is not a multiple of 64.

Fill in each missing reason.

____ 39. **Given:** $m\angle PQR = x - 5$, $m\angle SQR = x - 11$, and $m\angle PQS = 100$.
Find x.



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$m\angle PQR + m\angle SQR = m\angle PQS$	**a.** _____
$x - 5 + x - 11 = 100$	**b.** Substitution Property
$2x - 16 = 100$	**c.** Simplify
$2x = 116$	**d.** _____
$x = 58$	**e.** Division Property of Equality

a. Angle Addition Postulate; Subtraction Property of Equality
b. Protractor Postulate; Addition Property of Equality
c. Angle Addition Postulate; Addition Property of Equality
d. Protractor Postulate; Subtraction Property of Equality

____ 40. Name the Property of Equality that justifies the statement:
If $p = q$, then $p - r = q - r$.

a. Reflexive Property
b. Multiplication Property
c. Symmetric Property
d. Subtraction Property

____ 41. Which statement is an example of the Addition Property of Equality?

a. If $p = q$ then $p \cdot s = q \cdot s$
b. If $p = q$ then $p + s = q + s$.
c. If $p = q$ then $p - s = q - s$
d. $p = q$

____ 42. Name the Property of Congruence that justifies the statement:
If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

a. Transitive Property
b. Symmetric Property
c. Reflexive Property
d. none of these

Use the given property to complete the statement.

____ 43. Transitive Property of Congruence
If $\overline{CD} \cong \overline{EF}$ and $\overline{EF} \cong \overline{GH}$, then _____.
a. $\overline{EF} \cong \overline{GH}$
b. $\overline{EF} \cong \overline{EF}$
c. $\overline{CD} \cong \overline{GH}$
d. $\overline{CD} \cong \overline{EF}$

____ 44. Multiplication Property of Equality
If $4x \div 2 = 4$, then _____.
a. $4 = 4x \cdot 2$
b. $4 = 4x \div 2$
c. $4x = 8$
d. $4x \cdot 2 = 8$

____ 45. Substitution Property of Equality
If $y = 3$ and $8x + y = 12$, then _____.
a. $8(3) - y = 12$
b. $3 - y = 12$
c. $8x + 3 = 12$
d. $8x - 3 = 12$

____ 46. $\overline{BD}$ bisects $\angle ABC$. $m\angle ABC = 7x$. $m\angle ABD = 3x + 25$. Find $m\angle DBC$.
a. 50 b. 125 c. 75 d. 175

____ 47. Supplementary angles are two angles whose measures have sum ____.
Complementary angles are two angles whose measures have sum ____.
a. 90; 180 b. 90; 45 c. 180; 360 d. 180; 90

____ 48. Two angles whose sides are opposite rays are called ____ angles. Two coplanar angles with a common side, a common vertex, and no common interior points are called ____ angles.
a. vertical; adjacent
b. adjacent; vertical
c. vertical; supplementary
d. adjacent; complementary

____ 49. The complement of an angle is 25°. What is the measure of the angle?
a. 75° b. 155° c. 65° d. 165°

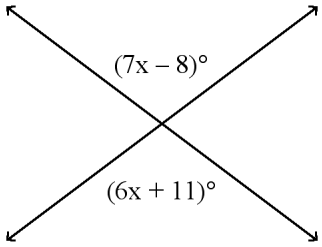
____ 50. $\angle DFG$ and $\angle JKL$ are complementary angles. $m\angle DFG = x + 5$, and $m\angle JKL = x - 9$. Find the measure of each angle.

a. $\angle DFG = 47$, $\angle JKL = 53$
b. $\angle DFG = 47$, $\angle JKL = 43$
c. $\angle DFG = 52$, $\angle JKL = 48$
d. $\angle DFG = 52$, $\angle JKL = 38$

____ 51. $\angle 1$ and $\angle 2$ are supplementary angles. $m\angle 1 = x - 39$, and $m\angle 2 = x + 61$. Find the measure of each angle.

a. $\angle 1 = 79$, $\angle 2 = 101$
b. $\angle 1 = 40$, $\angle 2 = 140$
c. $\angle 1 = 40$, $\angle 2 = 150$
d. $\angle 1 = 79$, $\angle 2 = 111$

____ 52. Find the value of x.



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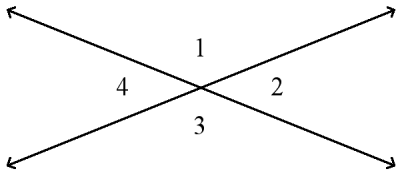
a. –19
b. 125
c. 19
d. 55

____ 53. $m\angle 3 = 37$. Find $m\angle 1$.



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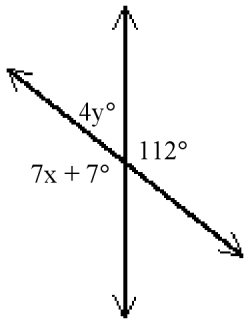
a. 37
b. 143
c. 27
d. 153

____ 54. Find the values of x and y.



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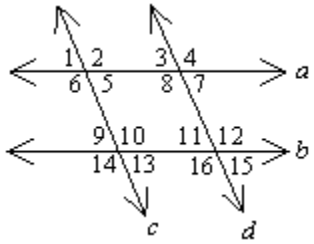
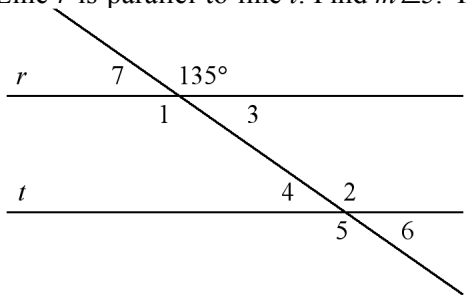
a. $x = 15, y = 17$
b. $x = 112, y = 68$
c. $x = 68, y = 112$
d. $x = 17, y = 15$

____ 55. Which angles are corresponding angles?



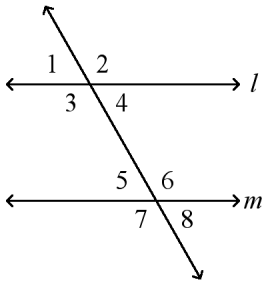
a. $\angle 8$ and $\angle 16$
b. $\angle 7$ and $\angle 8$
c. $\angle 4$ and $\angle 8$
d. none of these

____ 56. Line r is parallel to line t. Find $m\angle 5$. The diagram is not to scale.



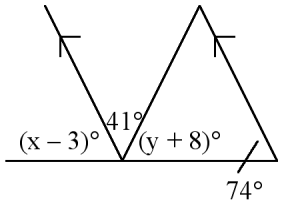
a. 45
b. 35
c. 135
d. 145

____ 57. Find the value of the variable if $m \parallel l$, $m\angle 1 = 2x + 44$ and $m\angle 5 = 5x + 38$. The diagram is not to scale.



a. 1 b. 2 c. 3 d. –2

____ 58. Find the values of x and y. The diagram is not to scale.

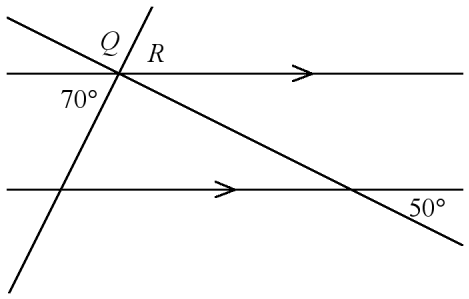


a. $x = 77, y = 59$
b. $x = 77, y = 57$
c. $x = 57, y = 77$
d. $x = 41, y = 57$

____ 59. Complete the statement. If a transversal intersects two parallel lines, then ____.
a. corresponding angles are supplementary
b. same-side interior angles are complementary
c. alternate interior angles are congruent
d. none of these

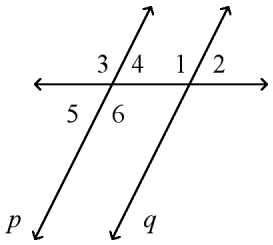
____ 60. Complete the statement. If a transversal intersects two parallel lines, then ____ angles are supplementary.
a. acute
b. alternate interior
c. same-side interior
d. corresponding

____ 61. Find $m\angle Q$. The diagram is not to scale.



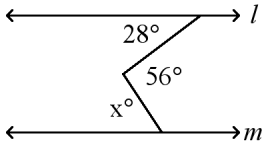
a. 60 b. 120 c. 110 d. 70

____ 62. $m\angle 1 = 6x$ and $m\angle 3 = 120$. Find the value of x for p to be parallel to q. The diagram is not to scale.



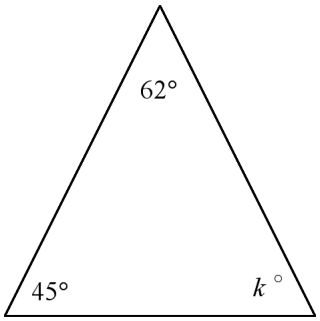
a. 114 b. 126 c. 120 d. 20

____ 63. Find the value of x for which l is parallel to m. The diagram is not to scale.



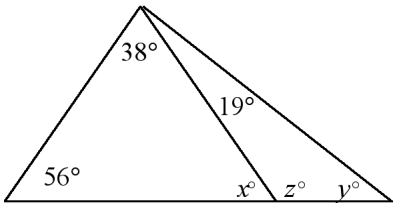
a. 28 b. 56 c. 84 d. 152

____ 64. Find the value of k. The diagram is not to scale.



a. 17 b. 73 c. 118 d. 107

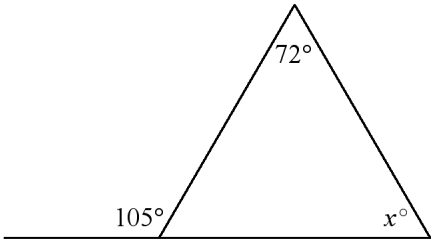
____ 65. Find the values of x, y, and z. The diagram is not to scale.



a. $x = 86,\ y = 94,\ z = 67$
b. $x = 67,\ y = 86,\ z = 94$
c. $x = 67,\ y = 94,\ z = 86$
d. $x = 86, y = 67, z = 94$

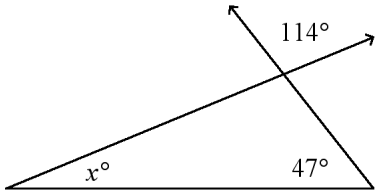
____ 66. Classify ΔABC by its angles, when $m\angle A = 32$, $m\angle B = 85$, and $m\angle C = 63$.
a. right b. straight c. obtuse d. acute

____ 67. Find the value of x. The diagram is not to scale.



a. 33 b. 162 c. 147 d. 75

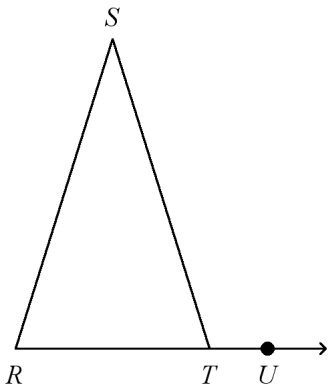
____ 68. Find the value of the variable. The diagram is not to scale.



a. 66 b. 19 c. 29 d. 43

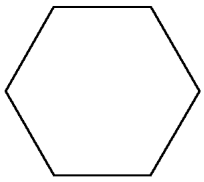
____ 69. Find the value of x. The diagram is not to scale.

Given: $\angle SRT \cong \angle STR$, $m\angle SRT = 20$, $m\angle STU = 4x$



a. 5 b. 24 c. 20 d. 40

____ 70. Classify the polygon by its sides.

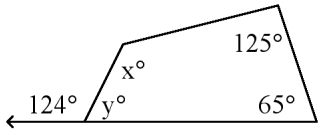


a. triangle b. hexagon c. pentagon d. octagon

____ 71. How many sides does a regular polygon have if each exterior angle measures 20?

a. 17 sides b. 20 sides c. 21 sides d. 18 sides

____ 72. Find the missing angle measures. The diagram is not to scale.

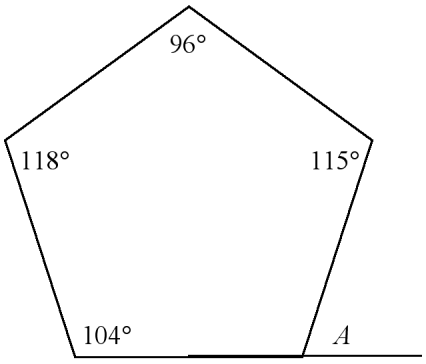


a. $x = 124, y = 125$
b. $x = 56, y = 114$
c. $x = 114, y = 56$
d. $x = 56, y = 124$

____ 73. The Polygon Angle-Sum Theorem states: The sum of the measures of the angles of an n-gon is ____.

a. $\frac{n - 2}{180}$
b. $(n - 1)180$
c. $\frac{180}{n - 1}$
d. $(n - 2)180$

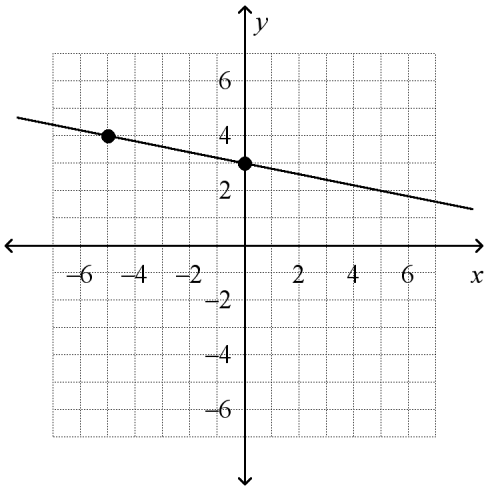
____ 74. Find $m\angle A$. The diagram is not to scale.



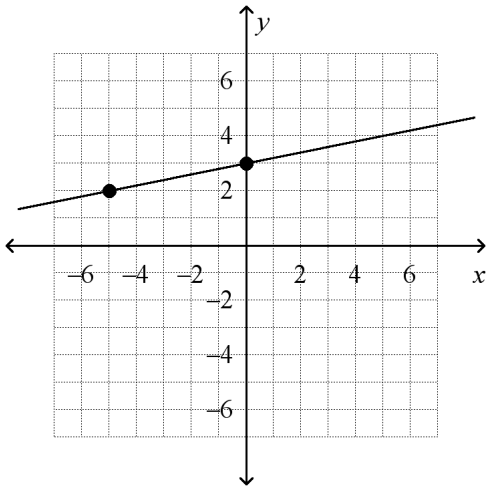
a. 107
b. 117
c. 63
d. 73

_____ 75. Graph $y = \frac{1}{5}x + 3$.

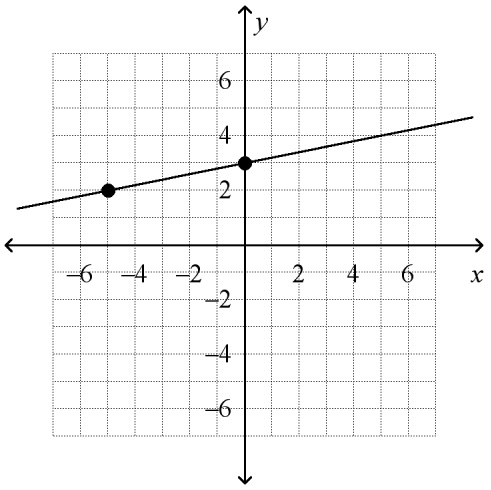
a.



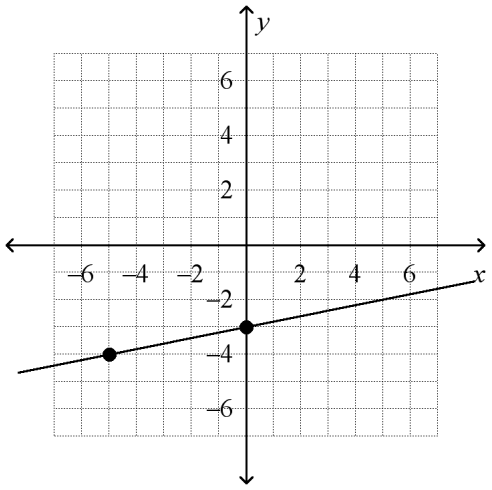
c.



b.



d.



_____ 76. Write an equation in slope-intercept form of the line through points $S(-10, -3)$ and $T(-1, 1)$.

a. $y = -\frac{4}{9}x + \frac{13}{9}$

c. $y = -\frac{4}{9}x - \frac{13}{9}$

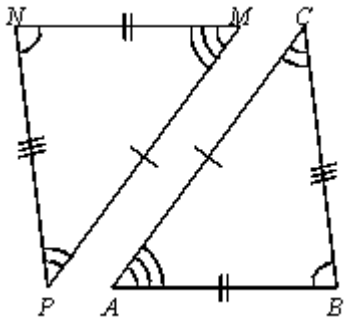
b. $y = \frac{4}{9}x - \frac{13}{9}$

d. $y = \frac{4}{9}x + \frac{13}{9}$

_____ 77. If *BCDE* is congruent to *OPQR*, then $\overline{DE}$ is congruent to __?__.

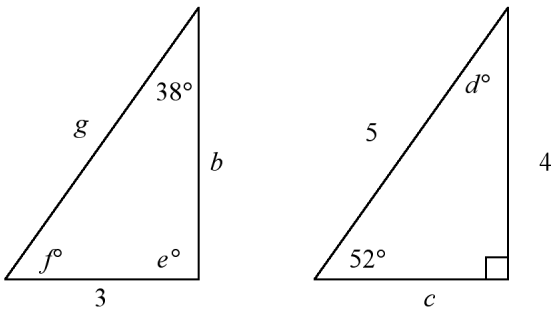
a. $\overline{PQ}$ b. $\overline{OR}$ c. $\overline{OP}$ d. $\overline{QR}$

____ 78. $\angle ABC \cong$?



a. $\angle PMN$ b. $\angle NPM$ c. $\angle NMP$ d. $\angle MNP$

____ 79. The two triangles are congruent as suggested by their appearance. Find the value of c. The diagrams are not to scale.

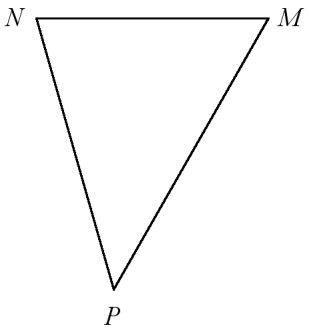


a. 4 b. 5 c. 3 d. 38

____ 80. 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

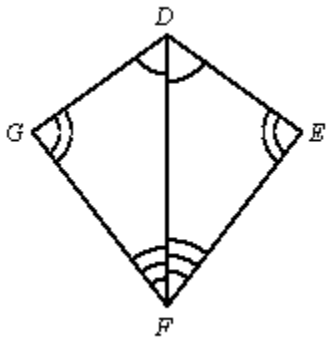
____ 81. Given $\Delta ABC \cong \Delta PQR$, $m\angle B = 3v + 4$, and $m\angle Q = 8v - 6$, find $m\angle B$ and $m\angle Q$.
a. 22 b. 11 c. 10 d. 25

____ 82. Name the angle included by the sides $\overline{PN}$ and $\overline{NM}$.



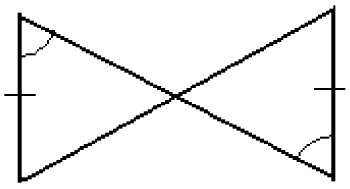
a. $\angle N$ b. $\angle P$ c. $\angle M$ d. none of these

____ 83. From the information in the diagram, can you prove $\Delta FDG \cong \Delta FDB$? Explain.



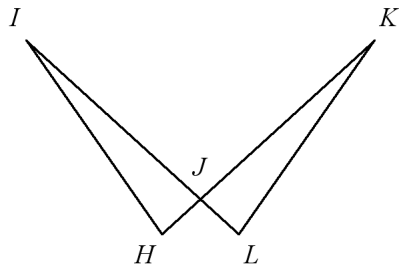
a. yes, by ASA
b. yes, by AAA
c. yes, by SAS
d. no

____ 84. Can you use the ASA Postulate, the AAS Theorem, or both to prove the triangles congruent?



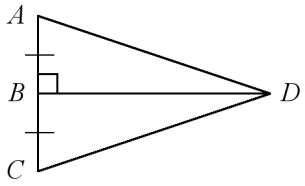
a. either ASA or AAS
b. ASA only
c. AAS only
d. neither

____ 85. Based on the given information, what can you conclude, and why?
Given: $\angle H \cong \angle L$, $\overline{HJ} \cong \overline{JL}$



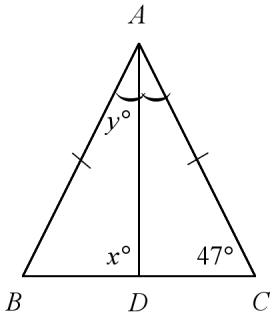
a. $\Delta HIJ \cong \Delta LKJ$ by ASA
b. $\Delta HIJ \cong \Delta JLK$ by SAS
c. $\Delta HIJ \cong \Delta JLK$ by ASA
d. $\Delta HIJ \cong \Delta LKJ$ by SAS

____ 86. Name the theorem or postulate that lets you immediately conclude $\Delta ABD \cong \Delta CBD$.



a. SAS
b. ASA
c. AAS
d. none of these

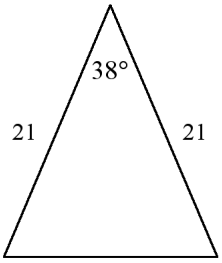
____ 87. Find the values of x and y.



Drawing not to scale

a. $x = 90,\ y = 47$
b. $x = 43,\ y = 47$
c. $x = 47, y = 43$
d. $x = 90, y = 43$

____ 88. What is the measure of a base angle of an isosceles triangle if the vertex angle measures 38° and the two congruent sides each measure 21 units?

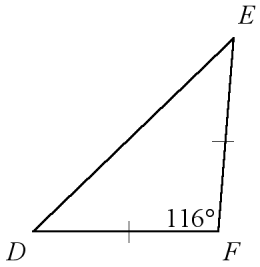


Drawing not to scale

a. 71° b. 142° c. 152° d. 76°

____ 89. What is the measure of the vertex angle of an isosceles triangle if one of its base angles measures 42°?
a. 69° b. 84° c. 138° d. 96°

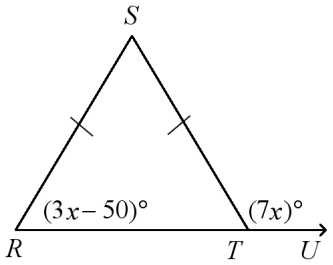
____ 90. Use the information in the figure. Find $m\angle D$.



Drawing not to scale

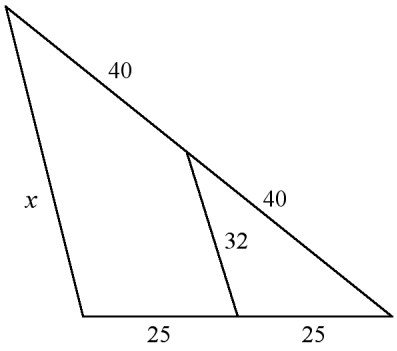
a. 32° b. 122° c. 64° d. 58°

____ 91. Find the value of x. The diagram is not to scale.



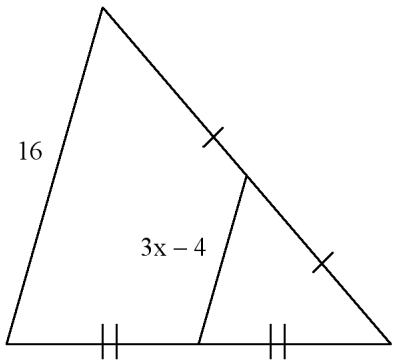
a. $x = 23$ b. $x = 40$ c. $x = 13$ d. none of these

____ 92. Find the value of x. The diagram is not to scale.



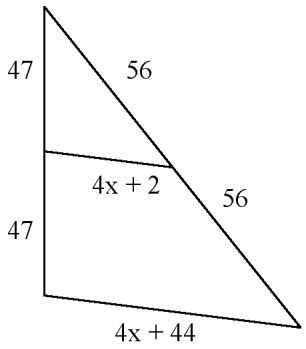
a. 32 b. 50 c. 64 d. 80

____ 93. Find the value of x.



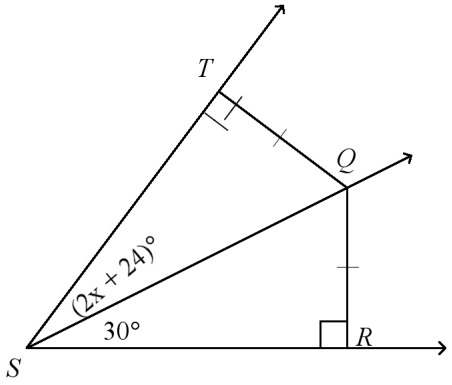
a. 4 b. 8 c. 6.6 d. 6

____ 94. Find the length of the midsegment. The diagram is not to scale.



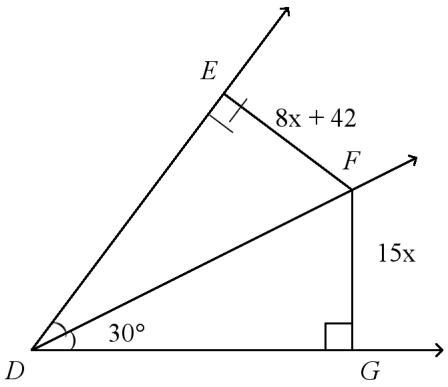
a. 24 b. 0 c. 42 d. 84

____ 95. Q is equidistant from the sides of $\angle TSR$. Find the value of x. The diagram is not to scale.



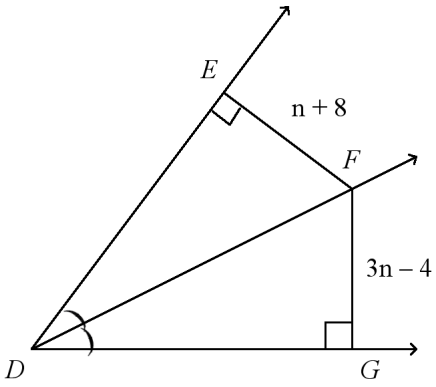
a. 27 b. 3 c. 15 d. 30

____ 96. $\overline{DF}$ bisects $\angle EDG$. Find the value of x. The diagram is not to scale.



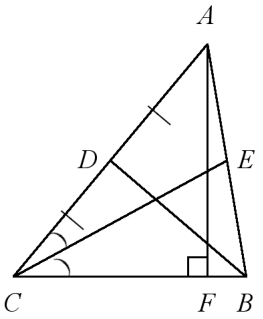
a. $\frac{23}{42}$ b. 90 c. 30 d. 6

____ 97. $\overrightarrow{DF}$ bisects $\angle EDG$. Find FG. The diagram is not to scale.



a. 15 b. 14 c. 19 d. 28

____ 98. Name a median for ΔABC.



a. $\overline{AD}$ b. $\overline{CE}$ c. $\overline{AF}$ d. $\overline{BD}$