Name: _____ **Class:** _____ **Date:** _____ **ID: D**

Geometry Honors Midterm Exam 2010-2011 (REVIEW)

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Refer to Figure 1.

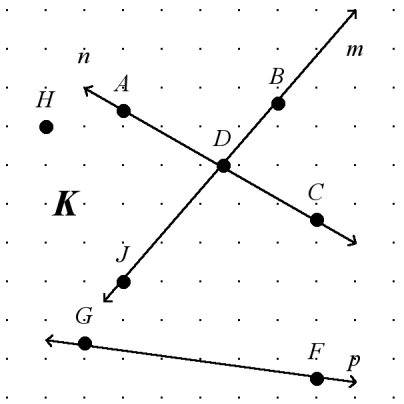


Figure 1

____ 1. Name a line that contains point *J*.

a. $\overleftrightarrow{DB}$
b. $\overleftrightarrow{GF}$
c. *n*
d. *p*

____ 2. What is another name for line *n*?

a. line *JB*
b. $\overleftrightarrow{DC}$
c. $\overleftrightarrow{GF}$
d. *AC*

Refer to Figure 2.

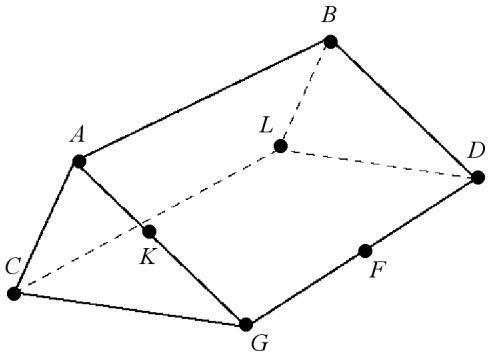


Figure 2

____ 3. Name four points that are coplanar.

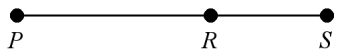
a. *G, D, L, B*
b. *C, K, A, G*
c. *L, A, C, G*
d. *K, B, D, L*

____ 4. Name an intersection of plane *GFL* and the plane that contains points *A* and *C*.

a. line *LC*
b. *C*
c. line *AC*
d. plane *CAB*

Find the measurement of the segment.

____ 5. $PR = 17.7$ mm, $RS = 11.2$ mm



$PS = ?$

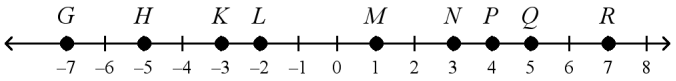
a. 28.9 mm
b. 6.5 mm
c. 28.8 mm
d. 29.1 mm

____ 6. Find the value of the variable and *GH* if *H* is between *G* and *I*.

$GI = 7b + 3, HI = 3b - 2, HI = 7$

a. $b = 3$, $GH = 24$
b. $b = 0.6$, $GH = 7.2$
c. $b = 0.57$, $GH = 6.71$
d. $b = 3$, $GH = 17$

Use the number line to find the measure.



____ 7. *MK*

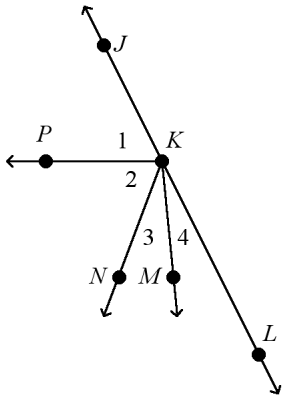
a. 3
b. –1
c. 4
d. 2

Find the coordinates of the midpoint of a segment having the given endpoints.

____ 8. $Q(1, 8), R(-11, -11)$

a. $(6, 9.5)$
c. $(12, 19)$
b. $(4.5, -11)$
d. $(-5, -1.5)$

In the figure, $\overrightarrow{KJ}$ and $\overrightarrow{KL}$ are opposite rays. $\angle 1 \cong \angle 2$ and $\overrightarrow{KM}$ bisects $\angle NKL$.



____ 9. Which is NOT true about $\overrightarrow{KM}$?

a. $\angle MKJ$ is acute.
b. $\angle 3 \cong \angle MKL$
c. Point M lies in the interior of $\angle LKN$.
d. It is an angle bisector.

____ 10. If $m\angle NKL = 82$ and $m\angle MKN = 3s + 2$, what is $m\angle 4$?

a. 26.67
c. 41
b. 13
d. 15.67

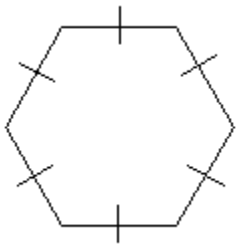
____ 11. If $m\angle LKN = 6w - 10$ and $m\angle JKP = 2w + 5$, what is w?

a. 41
c. 10
b. 18
d. 9

____ 12. The measures of two complementary angles are $12q - 9$ and $8q + 14$. Find the measures of the angles.

a. 42, 48
c. 8.75
b. 4.25
d. 96, 84

Name each polygon by its number of sides. Then classify it as convex *or* concave *and* regular *or* irregular.

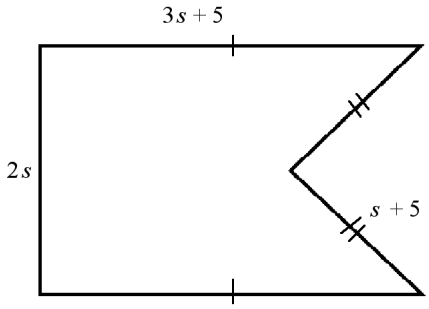


____ 13.

a. pentagon, convex, regular
b. hexagon, concave, regular
c. hexagon, convex, regular
d. hexagon, convex, irregular

Find the length of each side of the polygon for the given perimeter.

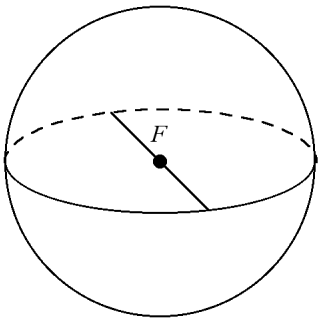
____ 14. $P = 100$ ft. Find the length of each side.



a. 41 ft, 41 ft, 17 ft, 17 ft, 24 ft
b. 29 ft, 29 ft, 13 ft, 13 ft, 16 ft
c. 50 ft, 50 ft, 20 ft, 20 ft, 30 ft
d. 33.5 ft, 33.5 ft, 14.5 ft, 14.5 ft, 19 ft

Identify the solid.

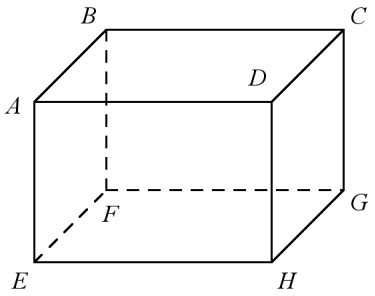
____ 15.



a. cone
b. sphere
c. cylinder
d. prism

Name the edges of the solid.

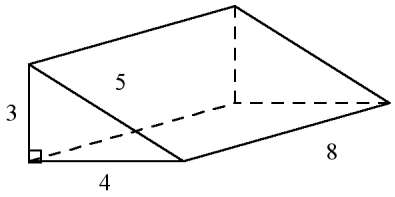
____ 16.



a. $\overline{AB}$, $\overline{AD}$, $\overline{BC}$, $\overline{CD}$, $\overline{AE}$, $\overline{BF}$, $\overline{CG}$, $\overline{DH}$, $\overline{EF}$, $\overline{FG}$, $\overline{GH}$, and $\overline{EH}$
b. $\overline{AB}$, $\overline{AD}$, $\overline{BC}$, and $\overline{CD}$
c. $\overline{EF}$, $\overline{FG}$, $\overline{GH}$, and $\overline{EH}$
d. $\overline{AE}$, $\overline{BF}$, $\overline{CG}$, and $\overline{DH}$

Find the volume of the solid.

____ 17.



a. 108 unit^3
b. 48 unit^3
c. 30 unit^3
d. 96 unit^3

Make a conjecture about the next item in the sequence.

____ 18. 6, 2, −4, −8, 16

a. −24
b. 12
c. −32
d. 18

Write the converse of the conditional statement. Determine whether the converse is true *or* false*. If it is false, find a counterexample.*

____ 19. If you have a dog, then you are a pet owner.

a. A dog owner owns a pet. True
b. If you have a dog, then you are a pet owner. True
c. If you are a pet owner, then you have a dog. True
d. If you are a pet owner, then you have a dog. False; you could own a hamster.

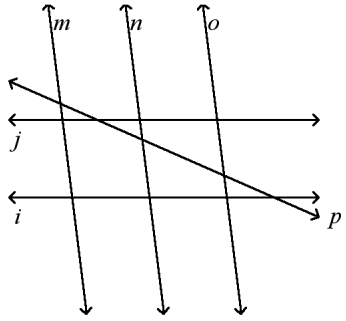
Write the inverse of the conditional statement. Determine whether the inverse is true *or* false*. If it is false, find a counterexample.*

____ 20. All quadrilaterals are four-sided figures.

a. All non-quadrilaterals are four-sided figures. False; a triangle is a non-quadrilateral.
b. All four-sided figures are quadrilaterals. True
c. No quadrilaterals are not four-sided figures. True
d. No four-sided figures are not quadrilaterals. True

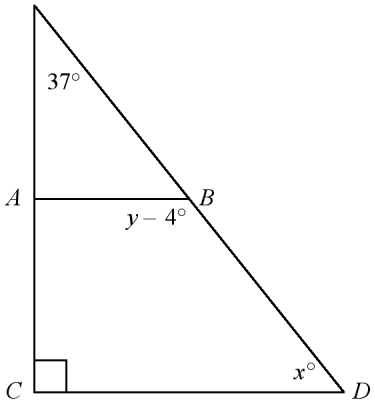
Identify the sets of lines to which the given line is a transversal.

____ 21. line n



a. lines i and j, p
b. lines m and o
c. lines j and i
d. lines j and i, i and p, j and p

____ 22. In the figure, $\overline{AB} \parallel \overline{CD}$. Find x and y.



a. $x = 33, y = 131$
b. $x = 53, y = 131$
c. $x = 37, y = 147$
d. $x = 131, y = 53$

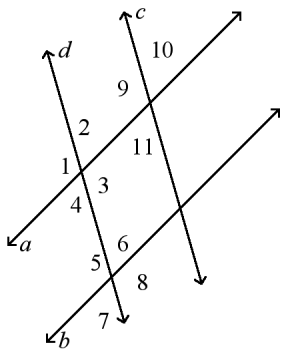
Determine whether $\overleftrightarrow{WX}$ *and* $\overleftrightarrow{YZ}$ *are* parallel, perpendicular, or neither.

____ 23. $W(-6, -2), X(8, 0), Y(1, 6), Z(5, 3)$

a. parallel
b. perpendicular
c. neither

Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

____ 24. $\angle 2 \cong \angle 6$



a. $a \parallel b$; congruent corresponding angles
b. $c \parallel d$; congruent corresponding angles
c. $a \parallel b$; congruent alternate exterior angles
d. $c \parallel d$; congruent alternate exterior angles

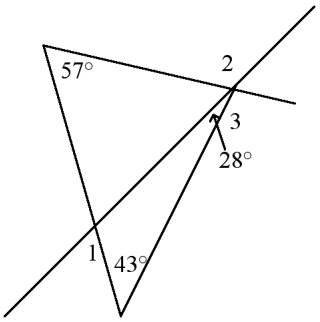
Find the measures of the sides of ΔABC *and classify the triangle by its sides.*

____ 25. $A(0, 3), B(2, 0), C(-1, -1)$

a. isosceles
b. scalene
c. obtuse
d. equilateral

Find each measure.

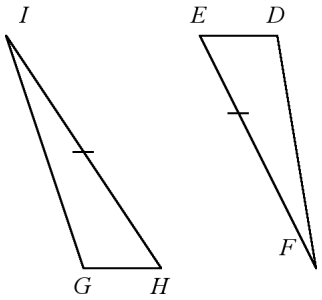
____ 26. $m\angle 1$, $m\angle 2$, $m\angle 3$



a. $m\angle 1 = 71$, $m\angle 2 = 152$, $m\angle 3 = 71$
b. $m\angle 1 = 52$, $m\angle 2 = 100$, $m\angle 3 = 100$
c. $m\angle 1 = 71$, $m\angle 2 = 128$, $m\angle 3 = 100$
d. $m\angle 1 = 43$, $m\angle 2 = 128$, $m\angle 3 = 128$

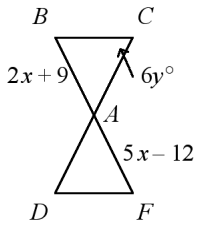
Identify the congruent triangles in the figure.

____ 27.



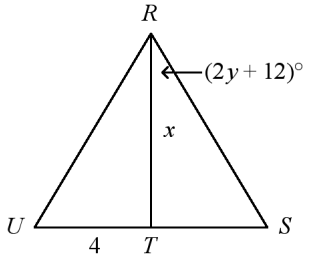
a. $\Delta EFD \cong \Delta IHG$
b. $\Delta DEF \cong \Delta IHG$
c. $\Delta FDE \cong \Delta IGH$
d. $\Delta EDF \cong \Delta IGH$

____ 28. Triangles ABC and AFD are vertical congruent equilateral triangles. Find x and y.



a. $x = 1$, $y = 5$
b. $x = 7$, $y = 10$
c. $x = 1$, $y = 10$
d. $x = 7$, $y = 5$

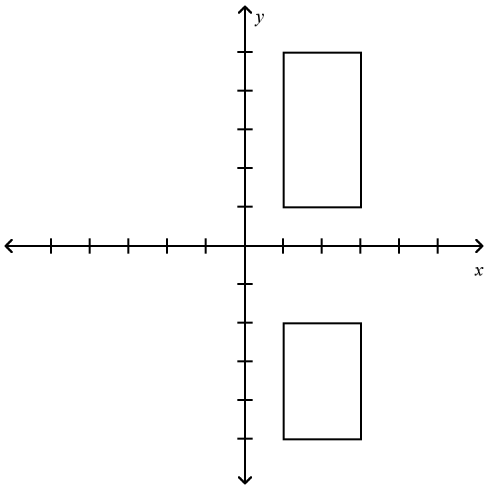
____ 29. Triangle RSU is an equilateral triangle. $\overline{RT}$ bisects $\overline{US}$. Find x and y.



a. $x = 4\sqrt{5}$, $y = 9$
b. $x = 4\sqrt{3}$, $y = 21$
c. $x = 4\sqrt{5}$, $y = 21$
d. $x = 4\sqrt{3}$, $y = 9$

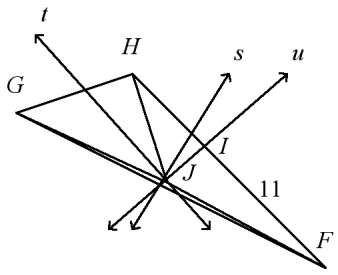
Identify the type of congruence transformation.

____ 30.



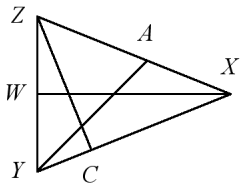
a. translation only
b. not a congruence transformation
c. rotation only
d. reflection or translation

____ 31. Lines s, t, and u are perpendicular bisectors of the sides of ΔFGH and meet at J. If $JG = 3x + 4$, $JH = 3y - 2$, $JF = 7$ and $HI = 2z - 3$, find x, y, and z.



a. $x = 3$, $y = 1$, $z = 7$
b. $x = 3.7$, $y = 1.7$, $z = 4$
c. $x = 1$, $y = 3$, $z = 7$
d. $x = 0$, $y = 4$, $z = 4$

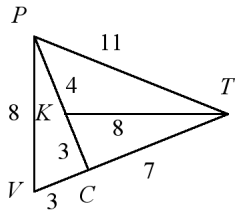
____ 32. $\overline{ZC}$ is an altitude, $\angle CYW = 10x + 30$, and $\angle WZC = 20x$. Find $m\angle WZC$.



a. 40
b. 37
c. 20
d. 32

Determine the relationship between the measures of the given angles.

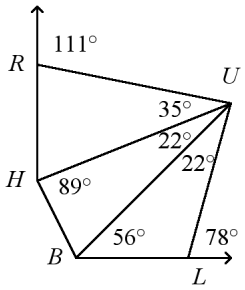
____ 33. $\angle CPV$, $\angle CTK$



a. $\angle CPV = \angle CTK$
b. $\angle CPV < \angle CTK$
c. $\angle CPV > \angle CTK$

Determine the relationship between the lengths of the given sides.

____ 34. $\overline{BL}$, $\overline{RH}$



a. $\overline{BL} > \overline{RH}$
b. $\overline{BL} = \overline{RH}$
c. $\overline{BL} < \overline{RH}$
d. cannot be determined

Determine whether the given measures can be the lengths of the sides of a triangle. Write yes *or* no. *Explain.*

____ 35. 3, 8, 12
a. Yes; the third side is the longest.
b. No; the first side is not long enough.
c. Yes; the sum of the lengths of any twosides is greater than the third.
d. No; the sum of the lengths of two sides is not greater than the third.

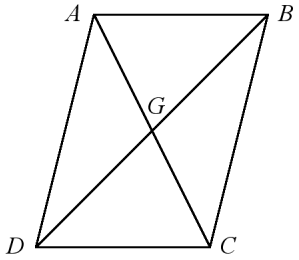
____ 36. Find the measure of each interior angle for a regular triangle. Round to the nearest tenth if necessary.

a. 60
b. 120
c. 360
d. 180

____ 37. Find the measure of an exterior angle of a regular polygon with 5 sides. Round to the nearest tenth if necessary.

a. 108
b. 360
c. 540
d. 72

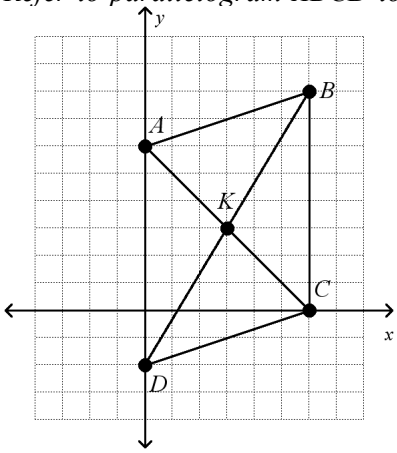
Complete the statement about parallelogram ABCD.



____ 38. $\angle ABC \cong$

a. $\angle BCD$; Alternate interior angles are congruent.
b. $\angle BCD$; Opposite angles of parallelograms are congruent.
c. $\angle ADC$; Opposite angles of parallelograms are congruent.
d. $\angle ADC$; Alternate interior angles are congruent.

Refer to parallelogram ABCD to answer to following questions.

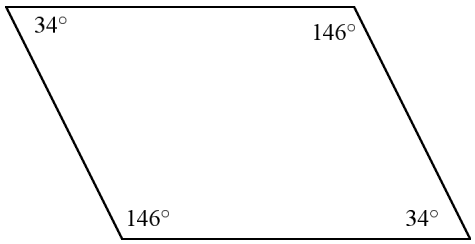


____ 39. What is the length of segment *AK*?

a. $\sqrt{34}$
b. $2\sqrt{34}$
c. $3\sqrt{2}$
d. $6\sqrt{2}$

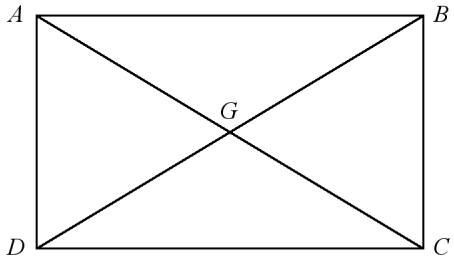
Determine whether the quadrilateral is a parallelogram. Justify your answer.

____ 40.



a. No; Consecutive angles are not congruent.
b. Yes; Consecutive angles are not congruent.
c. Yes; Opposite angles are congruent.
d. No; Opposite angles are congruent.

Quadrilateral ABCD is a rectangle.



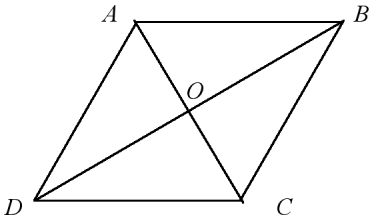
____ 41. If $AG = -3h + 21$ and $DG = 9h - 27$, find BD.

a. 4
b. 4.5
c. 18
d. 9

____ 42. If $\angle ADB = 2y + 35$ and $\angle CDB = 9y + 77$, find $\angle CBD$.

a. 59
b. 45
c. 31
d. -2

____ 43. In rhombus $ABCD$, if $AB = 19$, find CD.



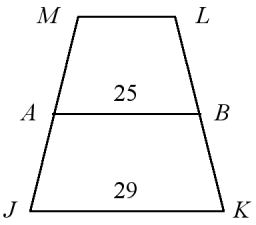
a. 38
b. 9.5
c. $19\sqrt{2}$
d. 19

Given each set of vertices, determine whether parallelogram ABCD is a rhombus, a rectangle, or a square. List all that apply.

____ 44. $A(-5, 1)$, $B(-2, 1)$, $C(-2, 4)$, $D(-5, 4)$

a. rhombus
b. square; rectangle; rhombus
c. rectangle
d. square

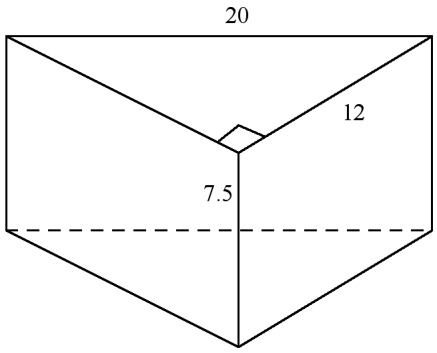
____ 45. For trapezoid *JKLM, A* and *B* are midpoints of the legs. Find *ML*.



a. 54
b. 27
c. 4
d. 21

Find the surface area of each prism. Round to the nearest tenth if necessary while doing your calculations as well as in your final answer.

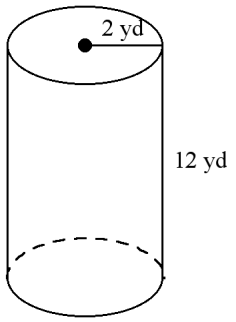
____ 46.



a. 586 units^2
b. 552 units^2
c. 456 units^2
d. 360 units^2

Find the surface area of the cylinder. Use 3.14 for pi and round your answer to the nearest tenth.

____ 47.



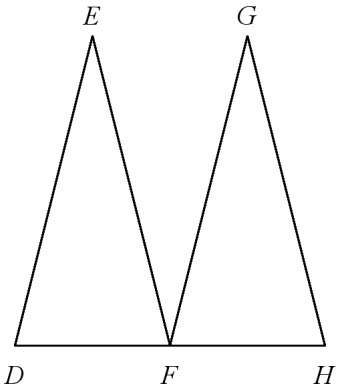
a. 17.0 yd^2
c. 136.7 yd^2
b. 175.8 yd^2
d. 150.7 yd^2

Write an equation in point-slope form of the line having the given slope that contains the given point.

____ 48. $m = -3, \left(-2, 1\right)$

a. $y = -3x + 3$
c. $y + 2 = -3(x - 1)$
b. $y - 3 = -2(x - 1)$
d. $y - 1 = -3(x + 2)$

____ 49. Which congruence statement does NOT necessarily describe the triangles shown if $\Delta DEF \cong \Delta FGH$?

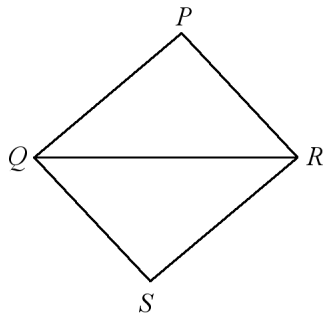


a. $\Delta EFD \cong \Delta GHF$
c. $\Delta EDF \cong \Delta GFH$
b. $\Delta FDE \cong \Delta HFG$
d. $\Delta EFD \cong \Delta HGF$

____ 50. Justify the last two steps of the proof.

Given: $\overline{PQ} \cong \overline{SR}$ and $\overline{PR} \cong \overline{SQ}$

Prove: $\Delta PQR \cong \Delta SRQ$

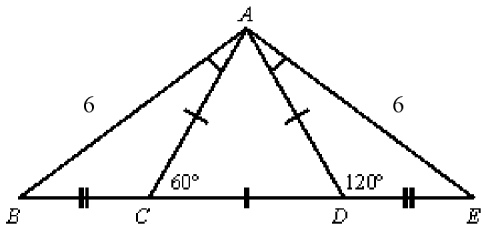


Proof:

1. $\overline{PQ} \cong \overline{SR}$	1. Given
2. $\overline{PR} \cong \overline{SQ}$	2. Given
3. $\overline{QR} \cong \overline{RQ}$	3. ___?___
4. $\Delta PQR \cong \Delta SRQ$	4. ___?___

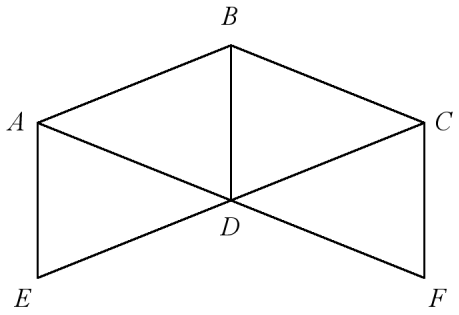
a. Reflexive Property of $\cong$; SAS
b. Symmetric Property of $\cong$; SSS
c. Symmetric Property of $\cong$; SAS
d. Reflexive Property of $\cong$; SSS

____ 51. State whether ΔABC and ΔAED are congruent. Justify your answer.



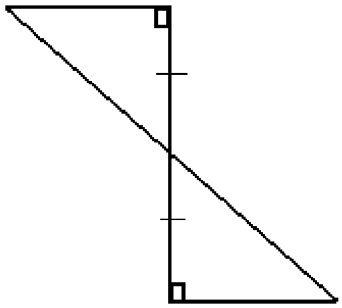
a. yes, by SSS only
b. yes, by either SSS or SAS
c. yes, by SAS only
d. No; there is not enough information to conclude that the triangles are congruent.

____ 52. Which two triangles are congruent by ASA?
$\overline{AF}$ bisects $\overline{EC}$, and $\angle AED \cong \angle FCD$.



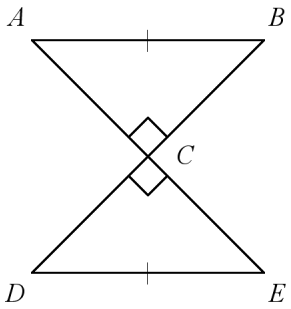
a. ΔAED and ΔADB
b. none
c. ΔADE and ΔFDC
d. ΔABD and ΔCBD

____ 53. Can you use the SAS Postulate, the AAS Theorem, or both to prove the triangles congruent?



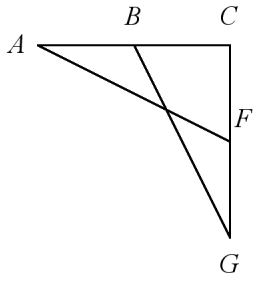
a. SAS only
b. either SAS or AAS
c. AAS only
d. neither

____ 54. What additional information will allow you to prove the triangles congruent by the HL Theorem?



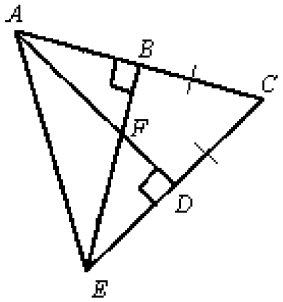
a. $\angle A \cong \angle E$
b. $m\angle BCE = 90$
c. $\overline{AC} \cong \overline{DC}$
d. $\overline{AC} \cong \overline{BD}$

____ 55. What common angle do ΔBGC and ΔAFC share?



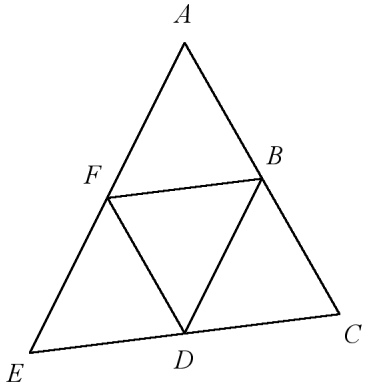
a. $\angle B$
b. $\angle C$
c. $\angle A$
d. $\angle G$

____ 56. Which overlapping triangles are congruent by ASA?



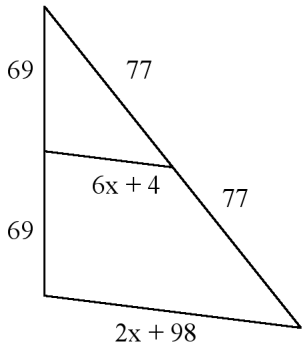
a. $\Delta ADC \cong \Delta EBC$
b. $\Delta ABE \cong \Delta CDA$
c. $\Delta ABE \cong \Delta DEA$
d. $\Delta ADC \cong \Delta EDA$

____ 57. Points B, D, and F are midpoints of the sides of ΔACE. $EC = 39$ and $DF = 20$. Find AC. The diagram is not to scale.



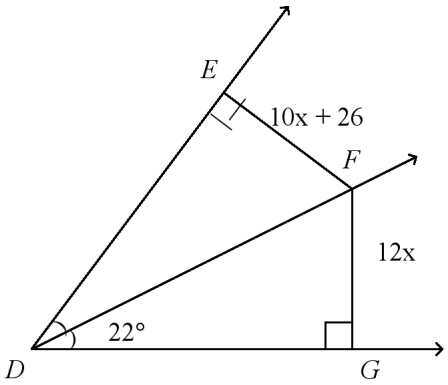
a. 39
b. 78
c. 40
d. 10

____ 58. Find the length of the midsegment. The diagram is not to scale.



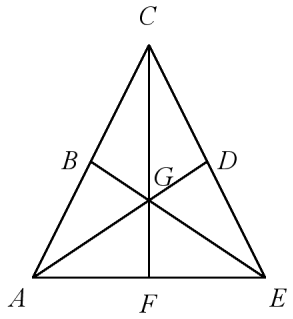
a. 58 b. 42 c. 116 d. 23.5

____ 59. $\overrightarrow{DF}$ bisects $\angle EDG$. Find the value of x. The diagram is not to scale.



a. $\frac{11}{13}$ b. 22 c. 156 d. 13

____ 60. In ΔACE, G is the centroid and $BE = 18$. Find BG and GE.



a. $BG = 12, GE = 6$ c. $BG = 6, GE = 12$

b. $BG = 4\frac{1}{2}, GE = 13\frac{1}{2}$ d. $BG = 9, GE = 9$