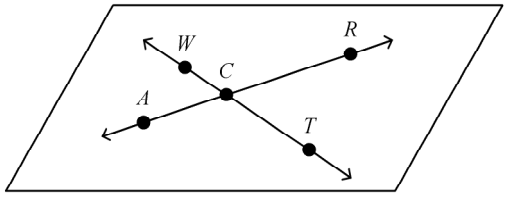
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Geometry Midterm Exam

Multiple Choice

Identify the choice that best completes the statement or answers the question. In addition to studying the problem types on here, you should also review all the chapter tests! Together, your chapter exams make up a more complete review packet than this one does! Remember, it isn't about the answers, it's about the flashcards and how to use them!

____ 1. Name a plane that contains $\overleftrightarrow{AC}$.



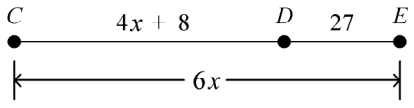
a. a
b. a
c. a
d. a

____ 2. Extend the table. What is the maximum number of squares determined by a 7×7 figure?

Figure			
Size of Figure	1×1	2×2	3×3
Maximum Number of Squares	1	5	14

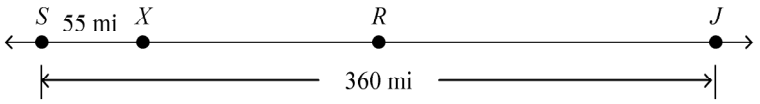
a. a
b. a
c. a
d. a

____ 3. D is between C and E. $CE = 6x$, $CD = 4x + 8$, and $DE = 27$. Find CE.



a. $CE = 17.5$
b. $CE = 78$
c. $CE = 105$
d. $CE = 57$

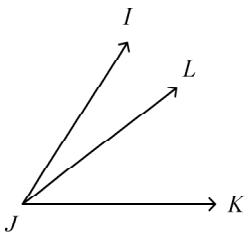
____ 4. The map shows a linear section of Highway 35. Today, the Ybarras plan to drive the 360 miles from Springfield to Junction City. They will stop for lunch in Roseburg, which is at the midpoint of the trip. If they have already traveled 55 miles this morning, how much farther must they travel before they stop for lunch?



a. a
b. a
c. a
d. a

____ 5. K is the midpoint of $\overline{JL}$. $JK = 6x$ and $KL = 3x + 3$. Find JK, KL, and JL.
a. $JK = 1$, $KL = 1$, $JL = 2$
b. $JK = 6$, $KL = 6$, $JL = 12$
c. $JK = 12$, $KL = 12$, $JL = 6$
d. $JK = 18$, $KL = 18$, $JL = 36$

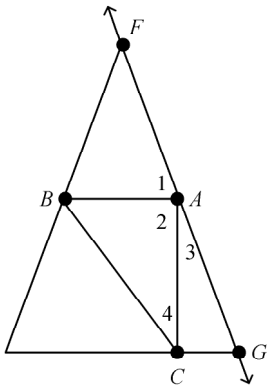
____ 6. $m\angle IJK = 57°$ and $m\angle IJL = 20°$. Find $m\angle LJK$.



a. $m\angle LJK = -37°$
b. $m\angle LJK = 77°$
c. $m\angle LJK = 37°$
d. $m\angle LJK = 40°$

____ 7. $\overrightarrow{BD}$ bisects $\angle ABC$, $m\angle ABD = (7x - 1)°$, and $m\angle DBC = (4x + 8)°$. Find $m\angle ABD$.
a. $m\angle ABD = 22°$
b. $m\angle ABD = 3°$
c. $m\angle ABD = 40°$
d. $m\angle ABD = 20°$

____ 8. Tell whether $\angle 1$ and $\angle 2$ are only adjacent, adjacent and form a linear pair, or not adjacent.



a. a
b. a
c. a

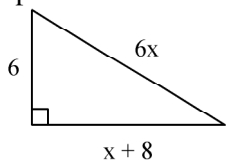
____ 9. Find the measure of the complement of $\angle M$, where $m\angle M = 31.1°$

a. 58.9°
c. 31.1°
b. 148.9°
d. 121.1°

____ 10. An angle measures 2 degrees more than 3 times its complement. Find the measure of its complement.

a. a
c. a
b. a
d. a

____ 11. Find the perimeter and area of the figure.

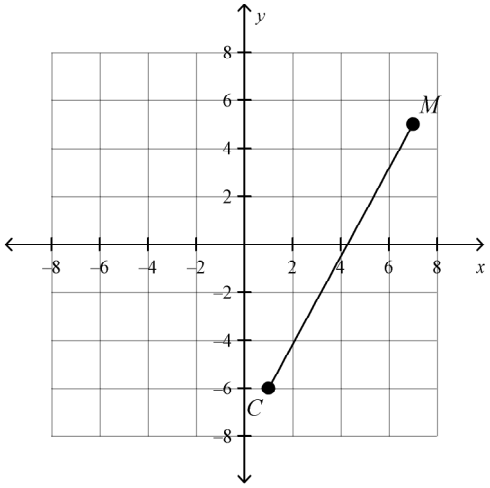


a. a
c. a
b. a
d. a

____ 12. The width of a rectangular mirror is $\frac{3}{4}$ the measure of the length of the mirror. If the area is 192 in^2, what are the length and width of the mirror?

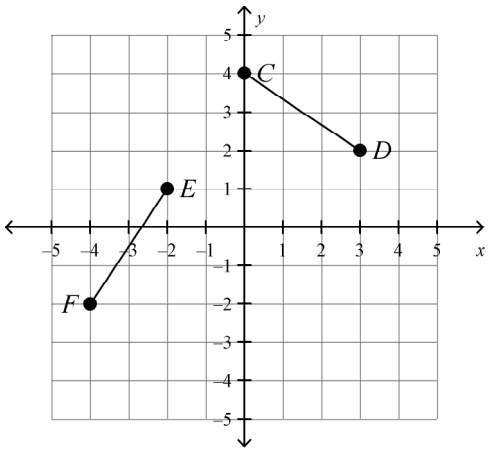
a. a
c. a
b. a
d. a

____ 13. Find the coordinates of the midpoint of $\overline{CM}$ with endpoints $C(1, -6)$ and $M(7, 5)$.



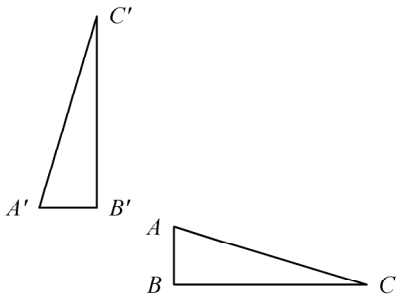
a. a
b. a
c. a
d. a

____ 14. Find CD and EF. Then determine if $\overline{CD} \cong \overline{EF}$.



a. *a*
b. a
c. a
d. a

____ 15. Identify the transformation. Then use arrow notation to describe the transformation.

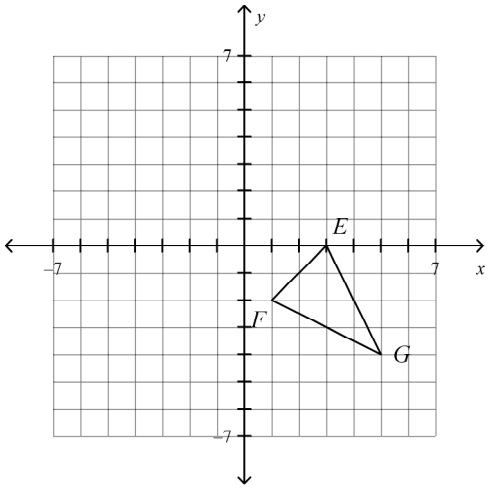


a. a
b. a
c. a
d. a

____ 16. A figure has vertices at $E(-3, 1)$, $F(1, 1)$, and $G(4, 5)$. After a transformation, the image of the figure has vertices at $E'(-3, -1)$, $F'(1, -1)$, and $G'(4, -5)$. Draw the preimage and image. Then identify the transformation.

a. a
b. a
c. a
d. a

____ 17. Find the coordinates for the image of ΔEFG after the translation $(x, y) \rightarrow (x - 6, y + 2)$. Draw the image.



a. a
b. a
c. a
d. a

____ 18. Find the next item in the pattern 2, 3, 5, 7, 11, ...

a. a
b. a
c. a
d. a

____ 19. Make a table of values for the rule $x^2 - 16x + 64$ when x is an integer from 1 to 6. Make a conjecture about the type of number generated by the rule. Continue your table. What value of x generates a counterexample?
a. a
b. a
c. a
d. a

____ 20. Identify the hypothesis and conclusion of the conditional statement.
If it is raining then it is cloudy.
a. a
b. a
c. a
d. a

____ 21. Write a conditional statement from the statement.
A horse has 4 legs.
a. a
b. a
c. a
d. a

____ 22. Determine if the conditional statement is true. If false, give a counterexample. If a figure has four sides, then it is a square.
a. True.
b. False; counterexample??????????

____ 23. There is a myth that a duck's quack does not echo. A group of scientists observed a duck in a special room, and they found that the quack does echo. Therefore, the myth is false.
Is the conclusion a result of inductive or deductive reasoning?
a. a
b. a
c. a
d. a

____ 24. Determine if the conjecture is valid by the Law of Detachment.
Given: If Tommy makes cookies tonight, then Tommy must have an oven. Tommy has an oven.
Conjecture: Tommy made cookies tonight.
a. a
b. a
c. a
d. a

____ 25. Draw a conclusion from the given information.
Given: If two lines are perpendicular, then they form right angles. If two lines meet at a 90° angle, then they are perpendicular. Two lines meet at a 90° angle.
a. a
b. a
c. a
d. a

____ 26. Write the conditional statement and converse within the biconditional.
A rectangle is a square if and only if all four sides of the rectangle are equal length.
a. a
b. a
c. a
d. a

____ 27. For the conditional statement, write the converse and a biconditional statement.
If a figure is a right triangle with sides a, b, and c, then $a^2 + b^2 = c^2$.
a. a
b. a
c. a
d. a

____ 28. Determine if the biconditional is true. If false, give a counterexample.
A figure is a square if and only if it is a rectangle.
a. a
b. a
c. a
d. a

____ 29. Solve the equation $4x - 6 = 34$. Write a justification for each step.

$$\begin{aligned} 4x - 6 &= 34 && [1] \\ \underline{+6} \quad &\underline{+6} && [2] \\ 4x \quad &= 40 && [3] \\ \frac{4x}{4} &= \frac{40}{4} && [4] \\ x \quad &= 10 && [5] \end{aligned}$$

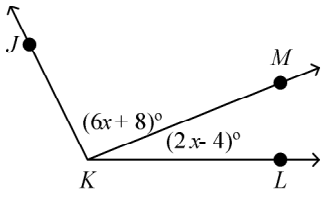
a. a
b. a
c. a
d. a

____ 30. A gardener has 26 feet of fencing for a garden. To find the width of the rectangular garden, the gardener uses the formula $P = 2l + 2w$, where P is the perimeter, l is the length, and w is the width of the rectangle. The gardener wants to fence a garden that is 8 feet long. How wide is the garden? Solve the equation for w, and justify each step.

$P = 2l + 2w$	1
$26 = 2(8) + 2w$	2
$26 = 16 + 2w$	3
$\underline{-16} = \underline{-16}$	
$10 = 2w$	
$\frac{10}{2} = \frac{2w}{2}$	4
$5 = w$	5
$w = 5$	6

a. a
b. a
c. a
d. a

____ 31. Write a justification for each step.



$m\angle JKL = 100°$

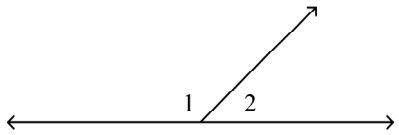
$m\angle JKL = m\angle JKM + m\angle MKL$	1
$100° = (6x + 8)° + (2x - 4)°$	2
$100 = 8x + 4$	3
$96 = 8x$	4
$12 = x$	5
$x = 12$	6

a. a
b. a
c. a
d. a

____ 32. Identify the property that justifies the statement.
$\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$. So $\overline{AB} \cong \overline{EF}$.

a. a
b. a
c. a
d. a

____ 33. Fill in the blanks to complete the two-column proof.
Given: ∠1 and ∠2 are supplementary. m∠1 = 135°

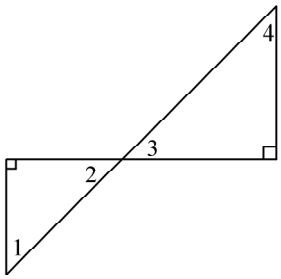


Prove: m∠2 = 45°

a

a. a
b. a
c. a
d. a

____ 34. Use the given plan to write a two-column proof.
Given: m∠1 + m∠2 = 90°, m∠3 + m∠4 = 90°, m∠2 = m∠3



Prove: m∠1 = m∠4

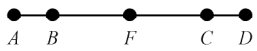
a

a. a
b. a
c. a
d. a

____ 35. Two angles with measures $(2x^2 + 3x - 5)°$ and $(x^2 + 11x - 7)°$ are supplementary. Find the value of x and the measure of each angle.

a. *a*
b. a
c. a
d. a

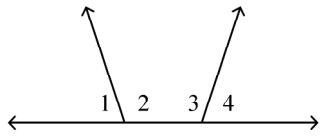
____ 36. Use the given flowchart proof to write a two-column proof of the statement $\overline{AF} \cong \overline{FD}$.



a

a. a
b. a
c. a
d. a

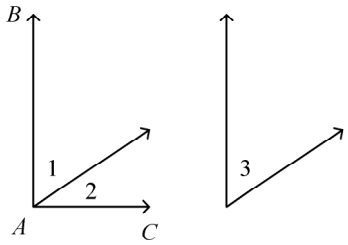
____ 37. Use the given two-column proof to write a flowchart proof.
Given: $\angle 1 \cong \angle 4$
Prove: $m\angle 2 = m\angle 3$



a

a. a
b. a
c. a
d. a

____ 38. Use the given paragraph proof to write a two-column proof.



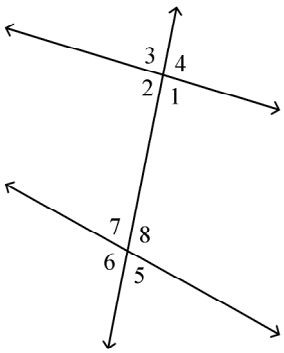
Given: $\angle BAC$ is a right angle. $\angle 1 \cong \angle 3$
Prove: $\angle 2$ and $\angle 3$ are complementary.

a

a. a
b. a
c. a
d. a

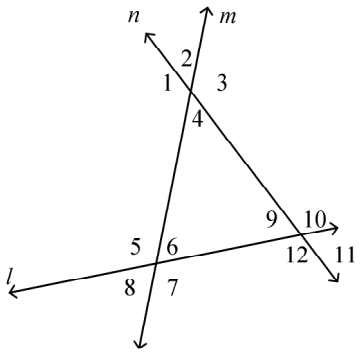
____ 39. Use p and q to find the truth value of the compound statement $p \wedge q$.
p : Blue is a color.
q : The sum of the measures of the angles of a triangle is 160°.
a. a
b. a
c. a
d. a

____ 40. Give an example of corresponding angles.



a. a
b. a
c. a
d. a

____ 41. Identify the transversal and classify the angle pair $\angle 11$ and $\angle 7$.

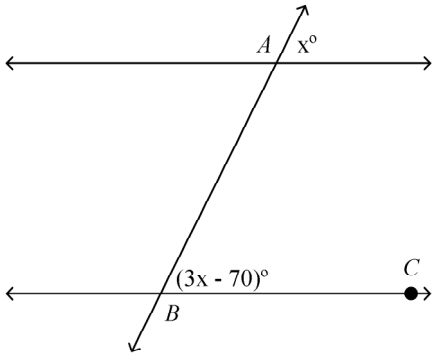


a. a
b. a
c. a
d. a

____ 42. Draw two lines and a transversal such that $\angle 1$ and $\angle 2$ are alternate interior angles, $\angle 2$ and $\angle 3$ are corresponding angles, and $\angle 3$ and $\angle 4$ are alternate exterior angles. What type of angle pair is $\angle 1$ and $\angle 4$?a

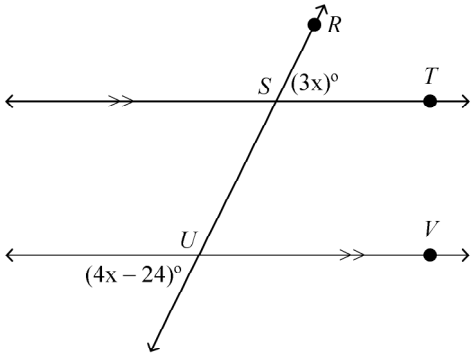
a. a
b. a
c. a
d. a

____ 43. Find m∠*ABC*.



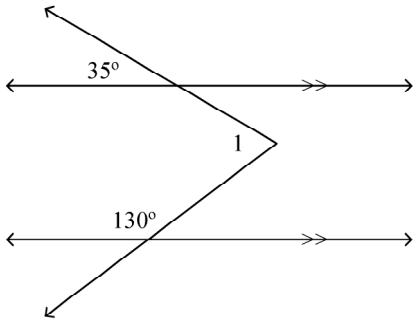
a. a
b. a
c. a
d. a

____ 44. Find m∠*RST*.



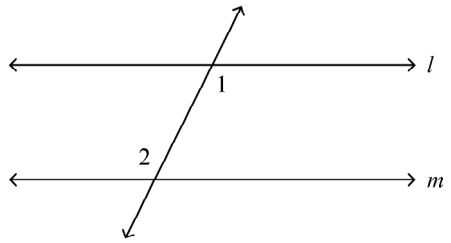
a. a
b. a
c. a
d. a

____ 45. Find m∠1 in the diagram. (Hint: Draw a line parallel to the given parallel lines.)



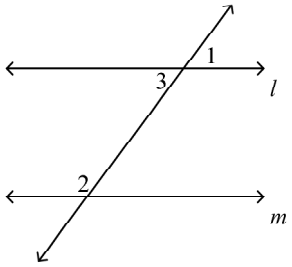
a. a
b. a
c. a
d. a

____ 46. Use the information $m\angle 1 = (3x + 30)°$, $m\angle 2 = (5x - 10)°$, and $x = 20$, and the theorems you have learned to show that $l \parallel m$. In other words, prove the 2 lines are parallel.



a. a
b. a
c. a
d. a

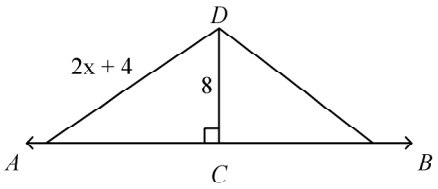
____ 47. **Given**: $m\angle 1 + m\angle 2 = 180°$
Prove: $l \parallel m$



a

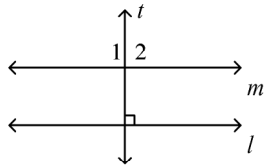
a. a
b. a
c. a
d. a

____ 48. Write and solve an inequality for x.



a. $x > 2$
b. $x < 2$
c. $x > 1$
d. $x < -2$

____ 49. Write a two-column proof.
Given: $t \perp l$, $\angle 1 \cong \angle 2$
Prove: $m \parallel l$

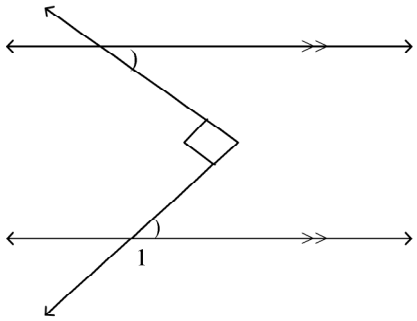


a

a. a
b. a
c. a
d. a

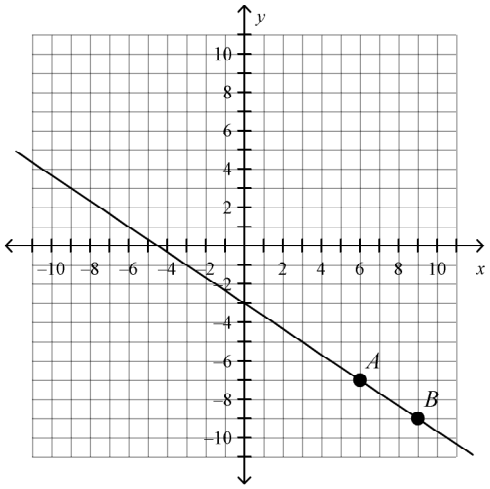
____ 50. From the ocean, salmon swim perpendicularly toward the shore to lay their eggs in rivers. Waves in the ocean are parallel to the shore. Why must the salmon swim perpendicularly to the waves?
a. a
b. a
c. a
d. a

____ 51. Find m$\angle$1 in the diagram. (Hint: Draw a line parallel to the given parallel lines.)



a. a
b. a
c. a
d. a

____ 52. Use the slope formula to determine the slope of the line containing points $A(6, -7)$ and $B(9, -9)$.



a. a
b. a
c. a
d. a

____ 53. Milan starts at the bottom of a 1000-foot hill at 10:00 am and bikes to the top by 3:00 PM. Graph the line that represents Milan's distance up the hill at a given time. Find and interpret the slope of the line.a

a. a
b. a
c. a
d. a

____ 54. Use slopes to determine whether the lines are parallel, perpendicular, or neither.

$\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ for $A(3,5)$, $B(-2,7)$, $C(10,5)$, and $D(6,15)$

a. a
b. a
c. a

____ 55. $\overline{AB} \parallel \overline{CD}$ for $A(4, -5)$, $B(-2, -3)$, $C(x, -2)$, and $D(6, y)$. Find a set of possible values for x and y.

a. $\left\{(x, y) \middle| y = \frac{1}{3}x - 4, x \neq 6\right\}$
b. $\left\{(x, y) \middle| y = \frac{1}{3}x - 4\right\}$
c. $\left\{(x, y) \middle| y = 3x - 20, y \neq -2\right\}$
d. $\left\{(x, y) \middle| y = 3x - 20, x \neq -2\right\}$

____ 56. Write the equation of the line with slope 2 through the point (4, 7) in point-slope form.

a. a
b. a
c. a
d. a

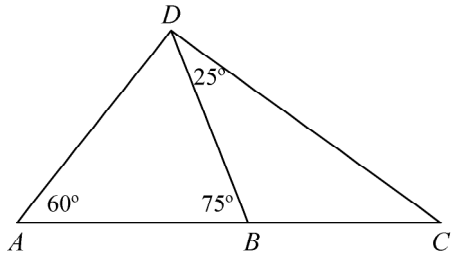
____ 57. Graph the line $y - 3 = 4(x - 6)$. a

a. a
b. a
c. a
d. a

____ 58. Determine whether the pair of lines $12x + 3y = 3$ and $y = 4x + 1$ are parallel, intersect, or coincide.

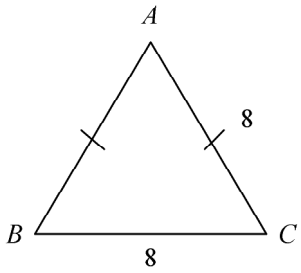
a. intersect
b. coincide
c. parallel

____ 59. Classify ΔDBC by its angle measures, given $m\angle DAB = 60°$, $m\angle ABD = 75°$, and $m\angle BDC = 25°$.



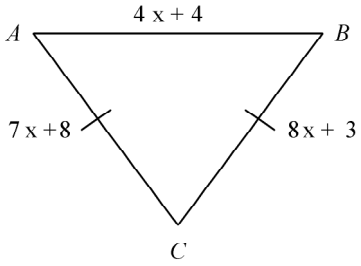
a. obtuse triangle
b. acute triangle
c. right triangle
d. equiangular triangle

____ 60. Classify ΔABC by its side lengths.



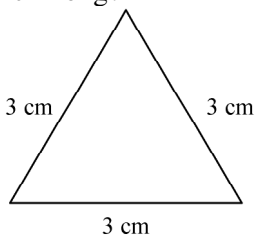
a. equilateral triangle
b. isosceles triangle
c. scalene triangle
d. obtuse triangle

____ 61. ΔABC is an isosceles triangle. $\overline{AB}$ is the longest side with length $4x + 4$. $BC = 8x + 3$ and $CA = 7x + 8$. Find AB.



a. $AB = 110$
b. $AB = 24$
c. $AB = 43$
d. $AB = 5$

____ 62. A jeweler creates triangular medallions by bending pieces of silver wire. Each medallion is an equilateral triangle. Each side of a triangle is 3 cm long. How many medallions can be made from a piece of wire that is 65 cm long?



a. a
b. a
c. a
d. a

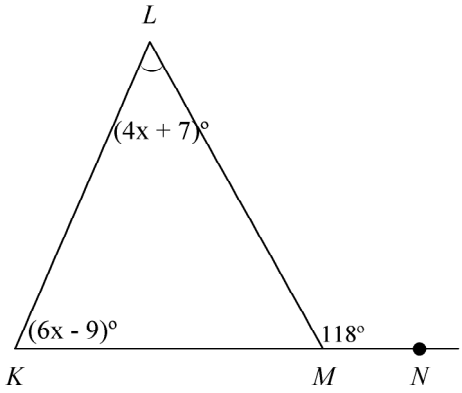
____ 63. Two sides of an equilateral triangle measure $(2y + 3)$ units and $(y^2 - 5)$ units. If the perimeter of the triangle is 33 units, what is the value of y?

a. $y = 11$
b. $y = 15$
c. $y = 4$
d. $y = 7$

____ 64. One of the acute angles in a right triangle has a measure of 34.6°. What is the measure of the other acute angle?

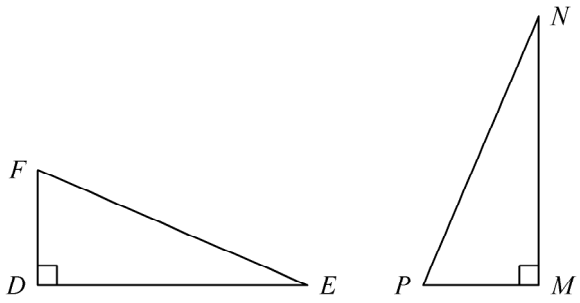
a. a
b. a
c. a
d. a

____ 65. Find m$\angle K$.



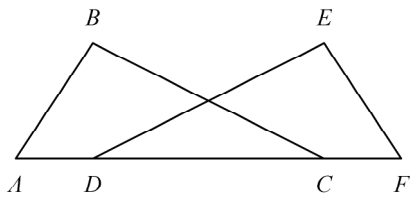
a. a
b. a
c. a
d. a

____ 66. Find m$\angle E$ and m$\angle N$, given m$\angle F$ = m$\angle P$, m$\angle E = (x^2)°$, and m$\angle N = (4x^2 - 75)°$.



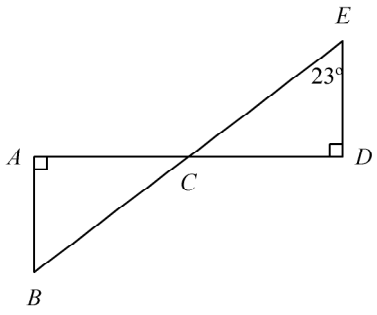
a. a
b. a
c. a
d. a

____ 67. Find m$\angle DCB$, given $\angle A \cong \angle F$, $\angle B \cong \angle E$, and m$\angle CDE = 46°$.



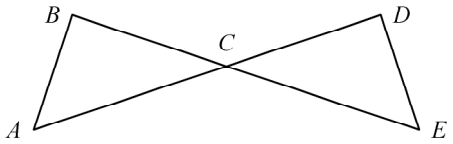
a. m$\angle DCB = 134°$
b. m$\angle DCB = 67°$
c. m$\angle DCB = 44°$
d. m$\angle DCB = 46°$

____ 68. Given that $\Delta ABC \cong \Delta DEC$ and m$\angle E = 23°$, find m$\angle ACB$.



a. a
b. a
c. a
d. a

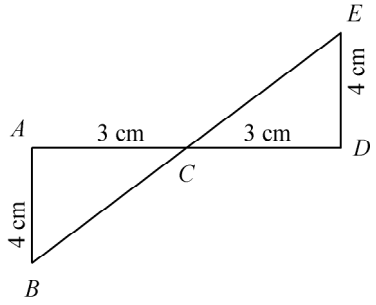
____ 69. Tom is wearing his favorite bow tie to the school dance. The bow tie is in the shape of two triangles.
Given: $\overline{AB} \cong \overline{ED}$, $\overline{BC} \cong \overline{DC}$, $\overline{AC} \cong \overline{EC}$, $\angle A \cong \angle E$
Prove: $\Delta ABC \cong \Delta EDC$



a

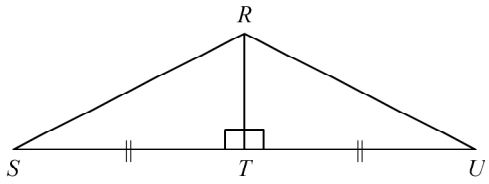
a. a
b. a
c. a
d. a

____ 70. Given the lengths marked on the figure and that $\overline{AD}$ bisects $\overline{BE}$, use SSS to explain why $\Delta ABC \cong \Delta DEC$.



a. a
b. a
c. a
d. a

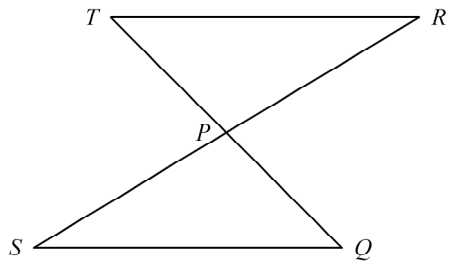
____ 71. The figure shows part of the roof structure of a house. Use SAS to explain why $\Delta RTS \cong \Delta RTU$.



a

a. a
b. a
c. a
d. a

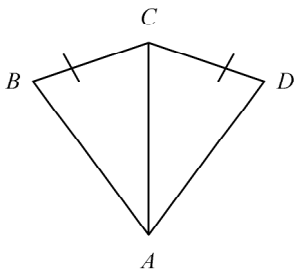
____ 72. **Given:** P is the midpoint of $\overline{TQ}$ and $\overline{RS}$.
Prove: $\Delta TPR \cong \Delta QPS$



a

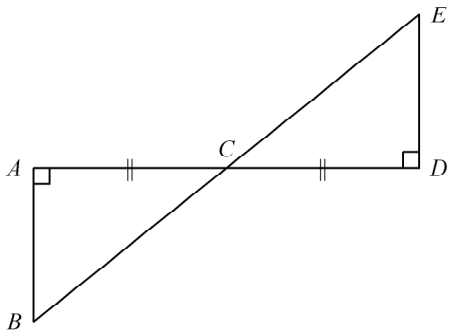
a. a
b. a
c. a
d. a

____ 73. What additional information do you need to prove $\Delta ABC \cong \Delta ADC$ by the SAS Postulate?



a. a
b. a
c. a
d. a

____ 74. Determine if you can use ASA to prove $\Delta CBA \cong \Delta CED$. Explain.



a

a. a
b. a
c. a
d. a

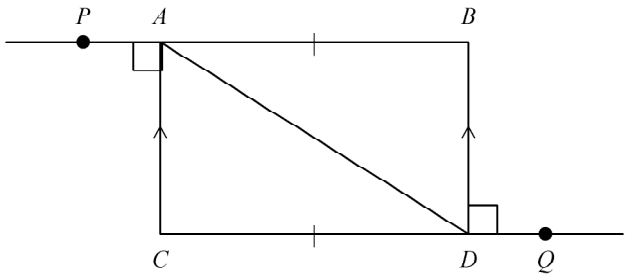
____ 75. Use AAS to prove the triangles congruent.

Given: $\overline{AB} \parallel \overline{GH}$, $\overleftrightarrow{AC} \parallel \overleftrightarrow{FH}$, $\overline{AC} \cong \overline{FH}$

Prove: $\Delta ABC \cong \Delta HGF$

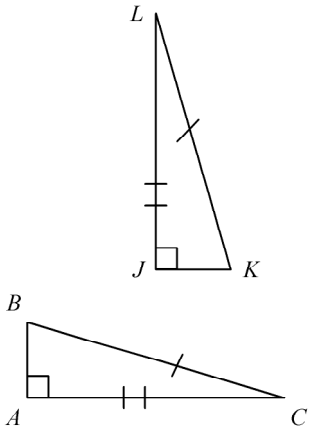
a. a
b. a
c. a
d. a

____ 76. Determine if you can use the HL Congruence Theorem to prove $\Delta ACD \cong \Delta DBA$. If not, tell what else you need to know.



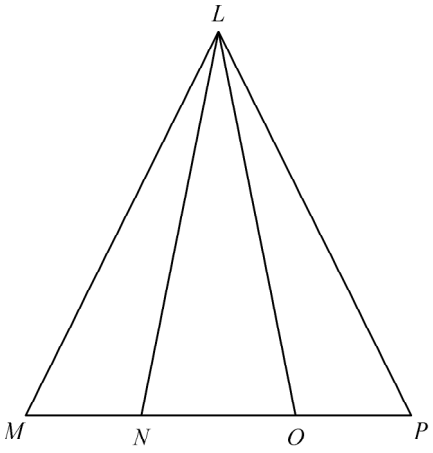
a. a
b. a
c. a
d. a

____ 77. For these triangles, select the triangle congruence statement and the postulate or theorem that supports it.



a. $\Delta ABC \cong \Delta JLK$, HL
b. $\Delta ABC \cong \Delta JKL$, HL
c. $\Delta ABC \cong \Delta JLK$, SAS
d. $\Delta ABC \cong \Delta JKL$, SAS

____ 78. **Given**: $\angle MLN \cong \angle PLO$, $\angle MNL \cong \angle POL$, $\overline{MO} \cong \overline{NP}$
Prove: ΔMLP is isosceles.



a

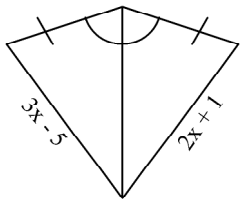
a. a
b. a
c. a
d. a

____ 79. **Given:** $A(3, -1)$, $B(5, 2)$, $C(-2, 0)$, $P(-3, 4)$, $Q(-5, -3)$, $R(-6, 2)$
Prove: $\angle ABC \cong \angle RPQ$

a

a. a
b. a
c. a
d. a

____ 80. Find the value of x.

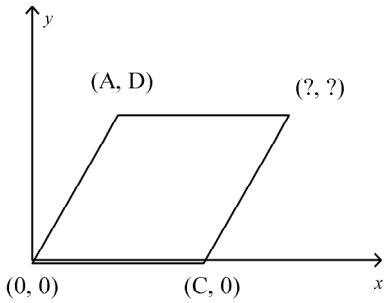


a. *a*
b. a
c. a
d. a

____ 81. Position a right triangle with leg lengths r and $2s + 4$ in the coordinate plane and give the coordinates of each vertex.a. This is 4-7 section

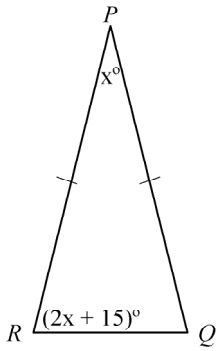
a. a
b. a
c. a
d. a

____ 82. Find the missing coordinates for the rhombus. This is 4-7 section



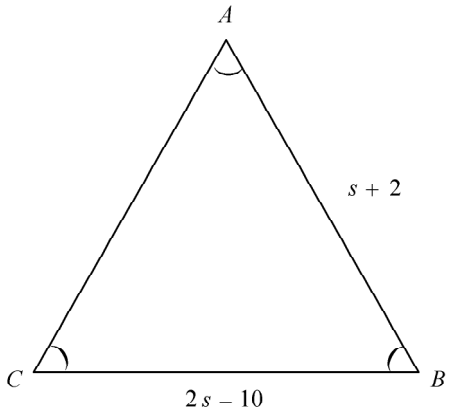
a. a
b. a
c. a
d. a

____ 83. Find m∠Q.



a. a
b. a
c. a
d. a

____ 84. Find *CA*.

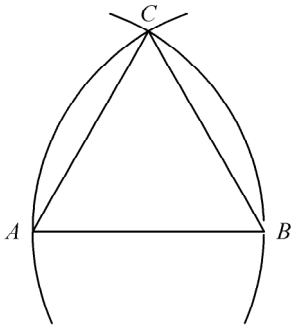


a. a
b. a
c. a
d. a

____ 85. **Given:** $\angle Q$ is a right angle in the isosceles ΔPQR. X is the midpoint of $\overline{PR}$. Y is the midpoint of $\overline{QR}$.
Prove: ΔQXY is isosceles.

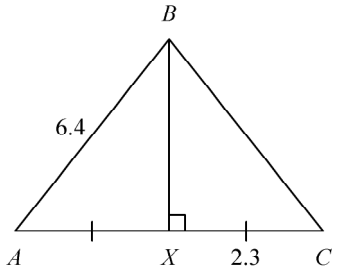
a
a. aa
b. a
c. a
d. a

____ 86. **Given**: diagram showing the steps in the construction
Prove: $m\angle A = 60°$



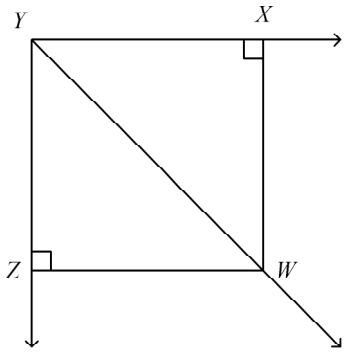
a
a. a
b. a
c. a
d. a

____ 87. Find the measures BC and AC.



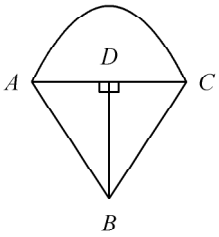
a. a
b. a
c. a
d. a

____ 88. Given that $\overrightarrow{YW}$ bisects $\angle XYZ$ and $WZ = 4.23$, find WX.



a. a
b. a
c. a
d. a

____ 89. Each pair of suspension lines on a parachute are the same length and are equally spaced from the center of the chute. To turn, the sky diver shortens one of the lines. How does this help the sky diver turn?

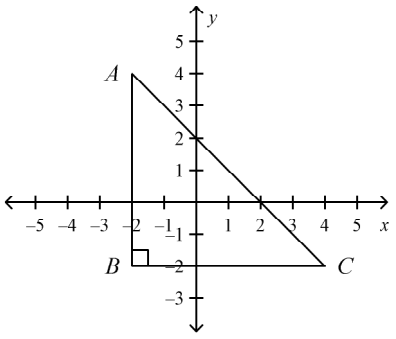


a. a
b. a
c. a
d. a

____ 90. Consider the points $A(-2, 5)$, $B(2, -3)$, $C(8, 0)$, and $P(4, 3)$. P is on the bisector of $\angle ABC$. Write an equation of the line in point-slope form that contains the bisector of $\angle ABC$.

a. a
b. a
c. a
d. a

____ 91. Find the circumcenter of ΔABC with vertices $A(-2,4)$, $B(-2,-2)$, and $C(4,-2)$.



a. a
b. a
c. a
d. a

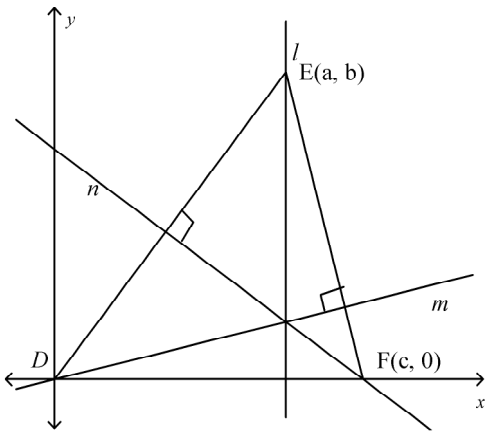
____ 92. Three towns, Maybury, Junesville, and Cyanna, will create one sports center. Where should the center be placed so that it is the same distance from all three towns?

a. a
b. a
c. a
d. a

____ 93. Find the orthocenter of ΔABC with vertices $A(1, -3)$, $B(2, 7)$, and $C(-2, -3)$.

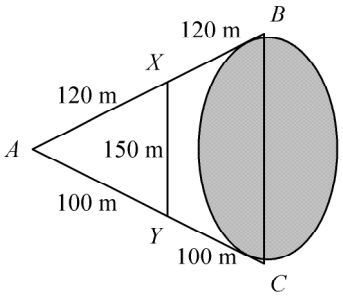
a. a
b. a
c. a
d. a

____ 94. Find the slopes of $\overline{DE}$, $\overline{EF}$, and $\overline{DF}$. Then, find the slopes of lines *m*, *n*, and *l* that contain the altitudes of ΔDEF.



a. a
b. a
c. a
d. a

____ 95. Vanessa wants to measure the width of a reservoir. She measures a triangle at one side of the reservoir as shown in the diagram. What is the width of the reservoir (*BC* across the base)?



a. a
b. a
c. a
d. a

____ 96. Write an indirect proof that an obtuse triangle does not have a right angle.

Given: ΔRST is an obtuse triangle.
Prove: ΔRST does not have a right angle.

a
a. a
b. a
c. a
d. a

____ 97. Tell whether a triangle can have sides with lengths 5, 11, and 7.
a. Yes
b. No

____ 98. Tell whether a triangle can have sides with lengths 1, 2, and 3.
a. No
b. Yes

____ 99. Tell whether a triangle can have sides with lengths 4, 2, and 7.

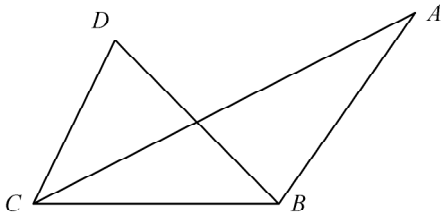
a. No
b. Yes

____ 100. The lengths of two sides of a triangle are 3 inches and 8 inches. Find the range of possible lengths for the third side, s.

a. $5 < s < 11$
b. $3 < s < 11$
c. $3 < s < 8$
d. $5 < s < 8$

____ 101. Write a two-column proof.

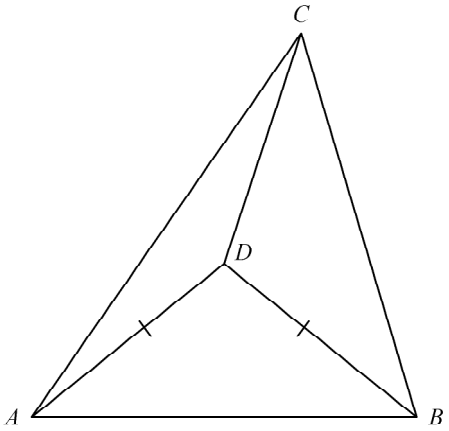
Given: $\overline{AB} \cong \overline{DB}$
Prove: $AC > DC$



a

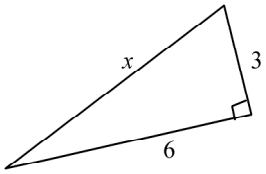
a. a
b. a
c. a
d. a

____ 102. In ΔABC, $m\angle ADC > m\angle BDC$, $AC = 3x + 32$, and $BC = 7x + 16$. Find the range of values for x.



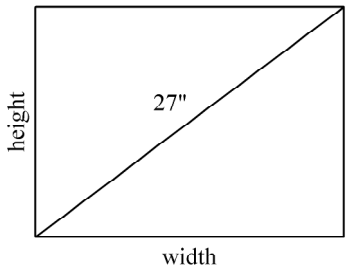
a. $0 < x < 4$
b. $-\frac{16}{7} < x < 4$
c. $x > 4$
d. $-\frac{7}{8} < x < 4$

____ 103. Find the value of x. Express your answer in simplest radical form.



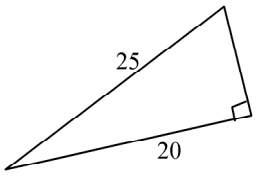
a. *a*
b. a
c. a
d. a

____ 104. The size of a TV screen is given by the length of its diagonal. The screen aspect ratio is the ratio of its width to its height. The screen aspect ratio of a standard TV screen is 4:3. What are the width and height of a 27" TV screen?



a. a
b. a
c. a
d. a

____ 105. Find the missing side length. Tell if the side lengths form a Pythagorean triple. Explain.

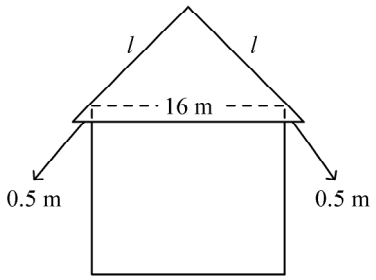


a. a
b. a
c. a
d. a

____ 106. Find all the values of k so that $(-3, 4)$, $(-8, 5)$, and $(-5, k)$ are the vertices of a right triangle.

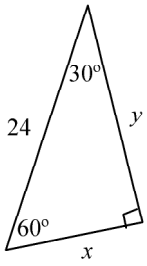
a. $k = -6, 1, 9, 20$
b. $k = -5, 2, 7, 19$
c. $k = -5, 1, 9, 19$
d. $k = -6, 2, 7, 20$

____ 107. An architect designs the front view of a house with a gable roof that has a 45°-45°-90° triangle shape. The overhangs are 0.5 meter each from the exterior walls, and the width of the house is 16 meters. What should the side length l of the triangle be? Round your answer to the nearest meter.



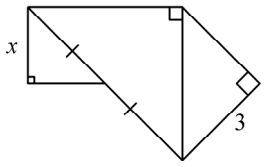
a. a
b. a
c. a
d. a

____ 108. Find the values of x and y. Express your answers in simplest radical form.



a. a
b. a
c. a
d. a

____ 109. Each triangle is a 45º-45º-90º triangle. Find the value of x.

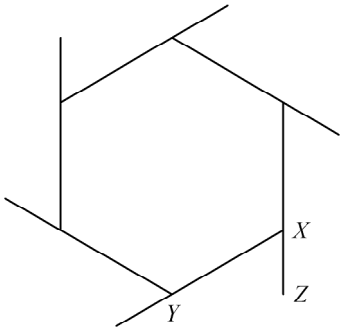


a. a
b. a
c. a
d. a

____ 110. Find the measure of each interior angle of a regular 45-gon.
a. 176°
b. 164°
c. 172°
d. 188°

____ 111. Find the measure of each exterior angle of a regular decagon.
a. 45°
b. 22.5°
c. 18°
d. 36°

____ 112. The door on a spacecraft is formed with 6 straight panels that overlap to form a regular hexagon. What is the measure of $\angle YXZ$?

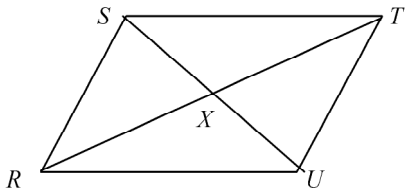


a. a
b. a
c. a
d. a

____ 113. Polygon *ABCDEFGHIJKL* is a regular dodecagon (12-sided polygon). Sides $\overline{EF}$ and $\overline{GH}$ are extended so that they meet at point *O* in the exterior of the polygon. Find m$\angle FOG$.

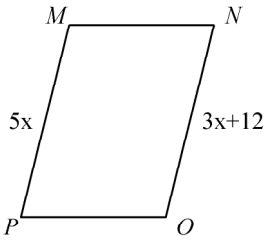
a. a
b. a
c. a
d. a

____ 114. The diagram shows the parallelogram-shaped component that attaches a car's rearview mirror to the car. In parallelogram *RSTU*, *UR* = 25, *RX* = 16, and m$\angle STU$ = 42.4°. Find *ST*, *XT*, and m$\angle RST$.



a. *a*
b. a
c. a
d. a

____ 115. *MNOP* is a parallelogram. Find *MP*.

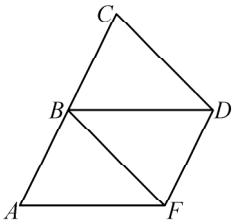


a. *a*
b. a
c. a
d. a

____ 116. Three vertices of parallelogram *WXYZ* are *X*(–2,–3), *Y*(0, 5), and *Z*(7, 7). Find the coordinates of vertex *W*.

a. a
b. a
c. a
d. a

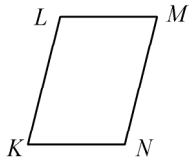
____ 117. Write a two-column proof.
Given: *ABDF* and *FBCD* are parallelograms.
Prove: $\angle BCD \cong \angle ABF$



a

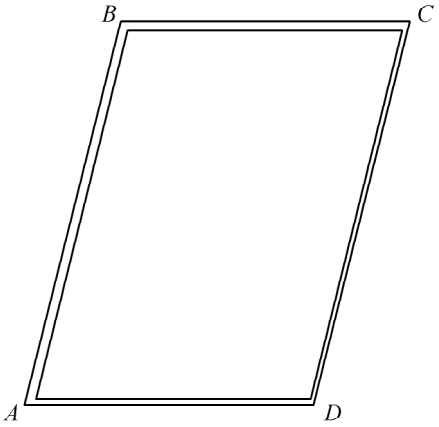
a. a
b. a
c. a
d. a

____ 118. $\overline{KL} \cong \overline{MN}$ and $\angle KLM \cong \angle MNK$. Determine if the quadrilateral must be a parallelogram. Justify your answer.



a. a
b. a
c. a
d. ram.

____ 119. A wooden frame has screws at A, B, C, and D so that the sides of it can be pressed to change the angles occurring at each vertex. $\overline{AB} \cong \overline{CD}$ and $\overline{AB} \parallel \overline{CD}$, even when the angles change. Why is the frame always a parallelogram?

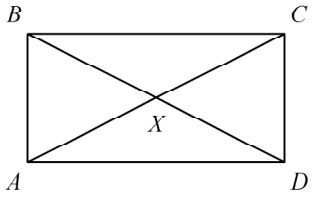


a. a
b. a
c. a
d. a

____ 120. Two vertices of a parallelogram are $A(2, 3)$ and $B(8, 11)$, and the intersection of the diagonals is $X(7, 6)$. Find the coordinates of the other two vertices.

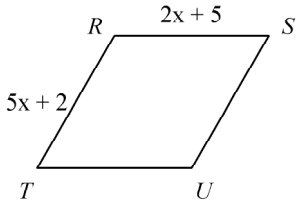
a. a
b. a
c. a
d. a

____ 121. An artist designs a rectangular quilt piece with different types of ribbon that go from the corner to the center of the quilt. The dimensions of the rectangle are $AB = 10$ inches and $AC = 14$ inches. Find BX.



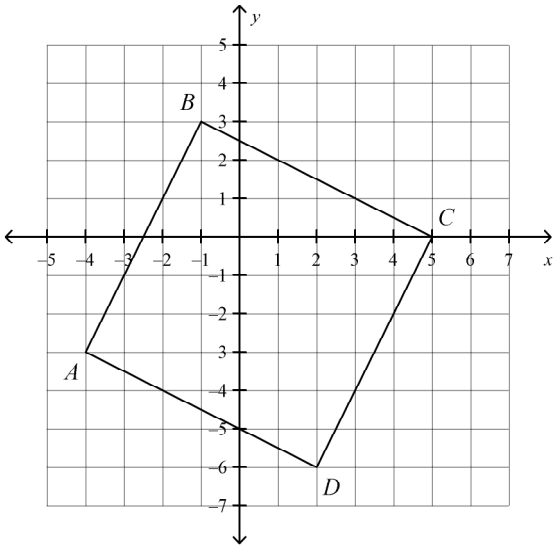
a. a
b. a
c. a
d. a

____ 122. *TRSU* is a rhombus. Find *SU*.



a. a
b. a
c. a
d. a

____ 123. Show that all four sides of square *ABCD* are congruent and that $\overline{AB} \perp \overline{BC}$.

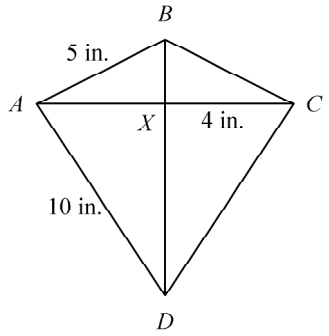


a. a
b. a
c. a
d. a

____ 124. Use the diagonals to determine whether a parallelogram with vertices $A(-1,-2)$, $B(-2,0)$, $C(0,1)$, and $D(1,-1)$is a rectangle, rhombus, or square. Give all the names that apply.

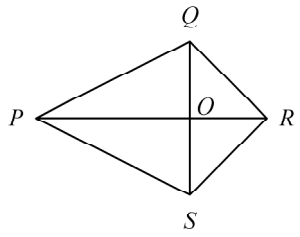
a. rectangle, rhombus, square
b. rectangle, rhombus
c. rectangle
d. square

____ 125. A pillow is the shape of a kite. Heath wants to create a design connecting opposite corners from point *B* to point *D*, and from point *A* to point *C*. Find the amount of cording needing. One package of cording contains 5 inches of cord. How many packages does Heath need?



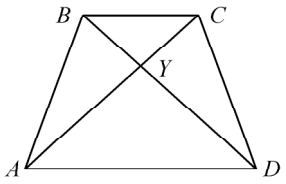
a. a
b. a
c. a
d. a

____ 126. In kite *PQRS*, m∠*QPO* = 50° and m∠*QRO* = 70°. Find m∠*PSR*.



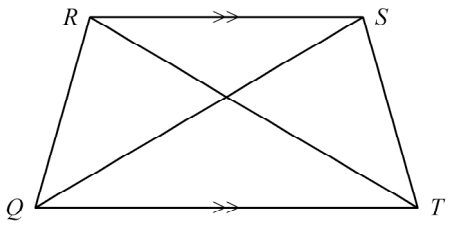
a. a
b. a
c. a
d. a

____ 127. Given isosceles trapezoid *ABCD* with $\overline{AB} \cong \overline{CD}$, *BY* = 10.3, and *AC* = 17.2. Find *YD*.



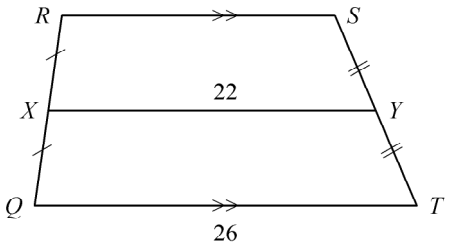
a. *a*
b. a
c. a
d. a

____ 128. $QS = 3x + 4$ and $RT = 8x - 10$. Find the value of x so that $QRST$ is isosceles.



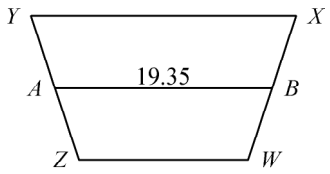
a. *a*
b. a
c. a
d. a

____ 129. Find *RS*.



a. *aa*
b. a
c. a
d. a

____ 130. The perimeter of isosceles trapezoid *WXYZ* is 55.9. If $XY = 3(ZY)$, find *ZW*, *WX*, *XY*, and *ZY*.



a. *A*
b. a
c. a
d. a