cs 3 Final Review Multiple Choice

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

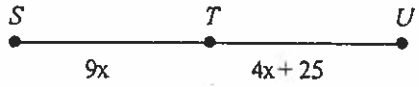
____ 1. Based on the pattern, what are the next two terms of the sequence?
9, 15, 21, 27, . . .
a. 33, 972 b. 39, 45 c. 162, 972 d. 33, 39

____ 2. Based on the pattern, what is the next figure in the sequence?

a.  b.  c.  d. 

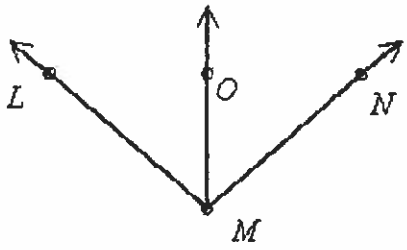
____ 3. Find a counterexample to show that the conjecture is false.
Conjecture: Any number that is divisible by 4 is also divisible by 8.
a. 24 b. 40 c. 12 d. 26

____ 4. If T is the midpoint of $\overline{SU}$, find the values of x and ST. The diagram is not to scale.



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

____ 5. $\overrightarrow{MO}$ 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.

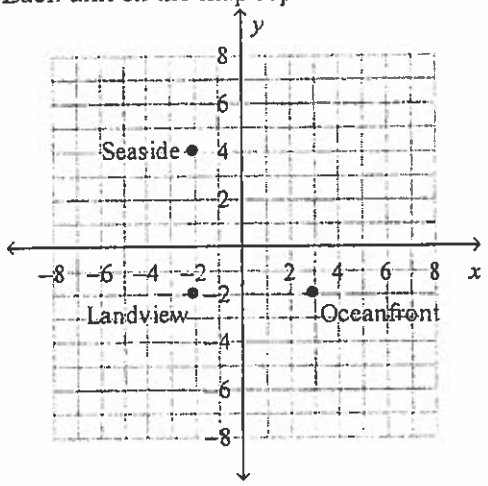


a. $x = 9, m\angle LMN = 98$ c. $x = 10, m\angle LMN = 114$
b. $x = 9, m\angle LMN = 49$ d. $x = 10, m\angle LMN = 57$

____ 6. The Frostburg-Truth bus travels from Frostburg Mall through the City Center to Sojourner Truth Park. The mall is 3 miles west and 2 miles south of the City Center. Truth Park is 4 miles east and 5 miles north of the Center. How far is it from Truth Park to the Mall to the nearest tenth of a mile?
a. 9.9 miles b. 3.6 miles c. 3.2 miles d. 6.4 miles

____ 7. Noam walks home from school by walking 8 blocks north and then 6 blocks east. How much shorter would his walk be if there were a direct path from the school to his house? Assume that the blocks are square.
a. 14 blocks c. 4 blocks
b. 10 blocks d. The distance would be the same.

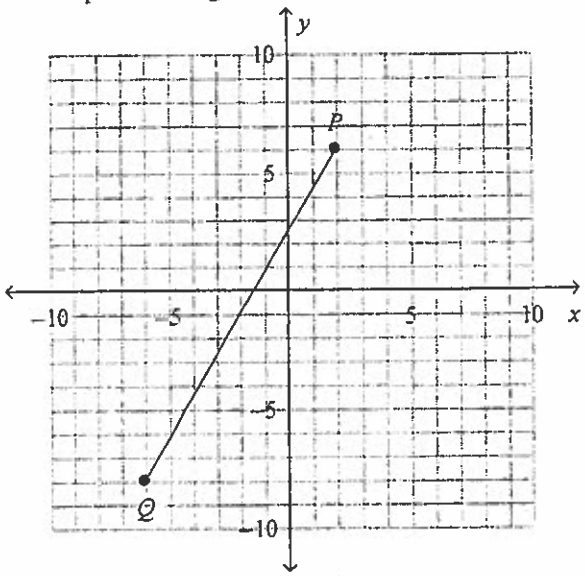
____ 8. Each unit on the map represents 5 miles. What is the actual distance from Oceanfront to Seaside?



a. 10 miles
b. 50 miles
c. about 8 miles
d. about 40 miles

____ 9. 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)

____ 10. Find the midpoint of $\overline{PQ}$.



a. (–3, –1) b. (–2, 0) c. (–2, –1) d. (–3, 0)

____ 11. Which statement is a counterexample for the following conditional?
If you live in Springfield, then you live in Illinois.
a. Sara Lucas lives in Springfield.
b. Jonah Lincoln lives in Springfield, Illinois.
c. Billy Jones lives in Chicago, Illinois.
d. Erin Naismith lives in Springfield, Massachusetts.

____ 12. 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

13. 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.

____ 14. What is the converse and the truth value of the converse of the following conditional?
If an angle is a right angle, then its measure is 90.
a. If an angle is not a right angle, then its measure is 90.
False
b. If an angle is not a right angle, then its measure is not 90.
True
c. If an angle has measure 90, then it is a right angle.
False
d. If an angle has measure 90, then it is a right angle.
True

____ 15. 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. $m\angle P \neq m\angle Q$

____ 16. 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

____ 17. 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.

____ 18. Given: $11x - 6y = -1, x = 8$

Prove: $\frac{89}{6} = y$

$11x - 6y = -1; x = 8$	a. _____
$88 - 6y = -1$	b. _____
$-6y = -89$	c. _____
$y = \frac{89}{6}$	d. _____
$\frac{89}{6} = y$	e. _____

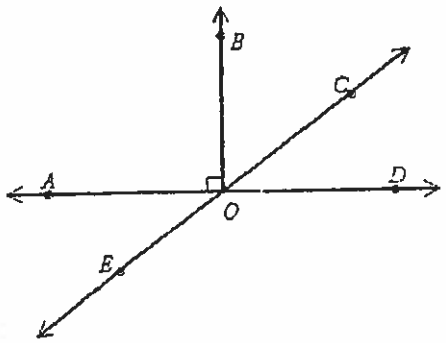
a. a. Given
   b. Symmetric Property of Equality
   c. Subtraction Property of Equality
   d. Division Property of Equality
   e. Reflexive Property of Equality

b. a. Given
   b. Substitution Property
   c. Subtraction Property of Equality
   d. Division Property of Equality
   e. Symmetric Property of Equality

c. a. Given
   b. Substitution Property
   c. Subtraction Property of Equality
   d. Division Property of Equality
   e. Reflexive Property of Equality

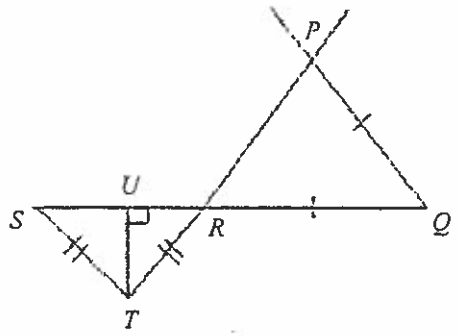
d. a. Given
   b. Substitution Property
   c. Subtraction Property of Equality
   d. Addition Property of Equality
   e. Symmetric Property of Equality

____ 19. Name an angle supplementary to $\angle EOD$.



a. $\angle BOC$ b. $\angle BOE$ c. $\angle DOC$ d. $\angle BOA$

____ 20. What can you conclude from the information in the diagram?



a. 1. $\overline{PQ} \cong \overline{RQ}$
   2. $\overline{TR} \cong \overline{TS}$
   3. $\angle TRS$ and $\angle PRQ$ are vertical angles

b. 1. $\overline{PQ} \cong \overline{PR}$
   2. $\overline{TR} \cong \overline{TS}$
   3. $\angle TRS$ and $\angle PRQ$ are adjacent angles

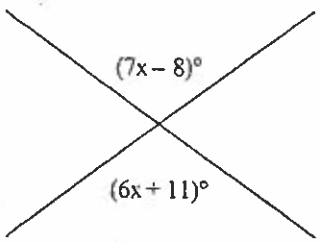
c. 1. $\overline{PQ} \cong \overline{RQ}$
   2. $\angle RUT$ is a right angle
   3. $\angle RTU$ and $\angle STU$ are vertical angles

d. 1. $\overline{PQ} \cong \overline{PR}$
   2. $\angle RUT$ is a right angle
   3. $\angle RTU$ and $\angle STU$ are adjacent angles

____ 21. 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

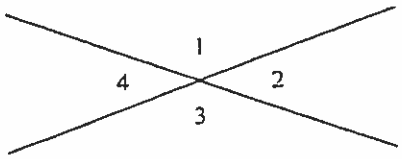
____ 22. Find the value of x.



Drawing not to scale

a. −19 b. 125 c. 19 d. 55

___ 23. $m\angle 3 = 37$. Find $m\angle 1$.



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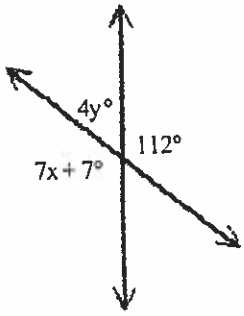
a. 37 b. 143 c. 27 d. 153

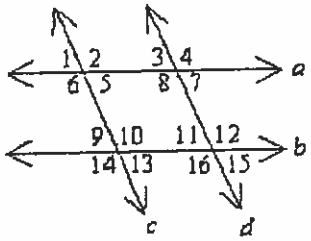
___ 24. Find the values of x and y.



Drawing not to scale

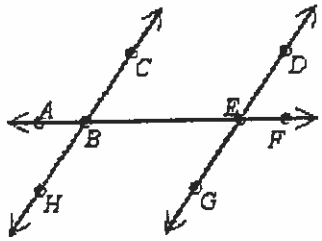
a. $x = 15, y = 17$
b. $x = 112, y = 68$
c. $x = 68, y = 112$
d. $x = 17, y = 15$

___ 25. Which angles are corresponding angles?



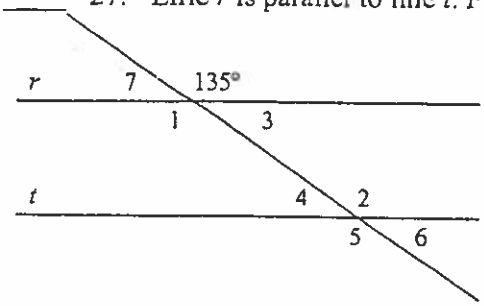
a. $\angle 8$ and $\angle 16$
b. $\angle 7$ and $\angle 8$
c. $\angle 4$ and $\angle 8$
d. none of these

___ 26. Which statement is true if line CH is parallel to line DG?



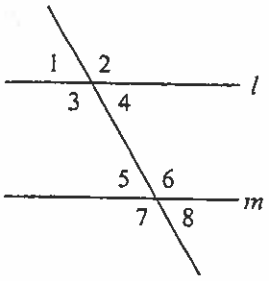
a. $\angle ABC \cong \angle DEF$
b. $\angle GEF \cong \angle DEF$
c. $\angle ABH \cong \angle AEF$
d. $\angle HBE \cong \angle BED$

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



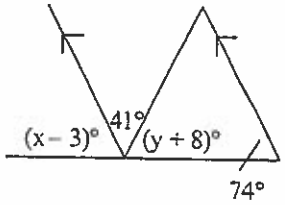
a. 45 b. 35 c. 135 d. 145

28. 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

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

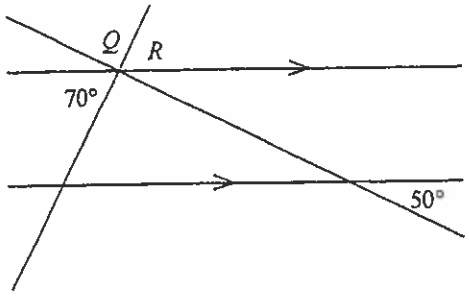


a. $x = 77, y = 59$
b. $x = 77, y = 57$
c. $x = 57, y = 77$
d. $x = 41, y = 57$

30. 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

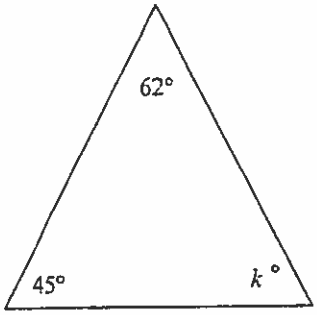
31. Complete the statement. If a transversal intersects two parallel lines, then ____ angles are supplementary.
a. acute
b. alternate interior
c. same-side interior
d. corresponding

____ 32. Find $m\angle Q$. The diagram is not to scale.



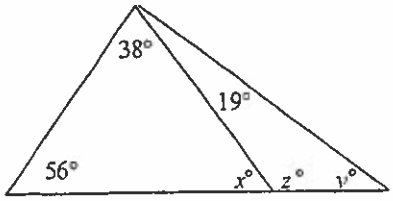
a. 60 b. 120 c. 110 d. 70

____ 33. Find the value of k. The diagram is not to scale.



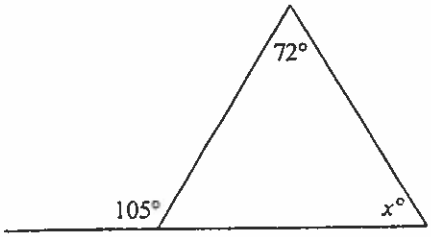
a. 17 b. 73 c. 118 d. 107

____ 34. Find the values of x, y, and z. The diagram is not to scale.



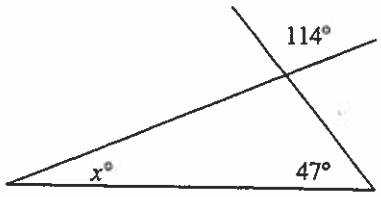
a. $x = 86,\ y = 94,\ z = 67$
b. $x = 67,\ y = 86,\ z = 94$
c. $x = 67,\ y = 94,\ z = 86$
d. $x = 86,\ y = 67,\ z = 94$

____ 35. Find the value of x. The diagram is not to scale.



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

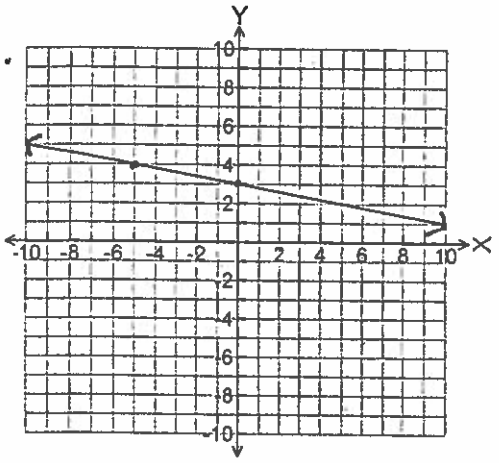
36. Find the value of the variable. The diagram is not to scale.



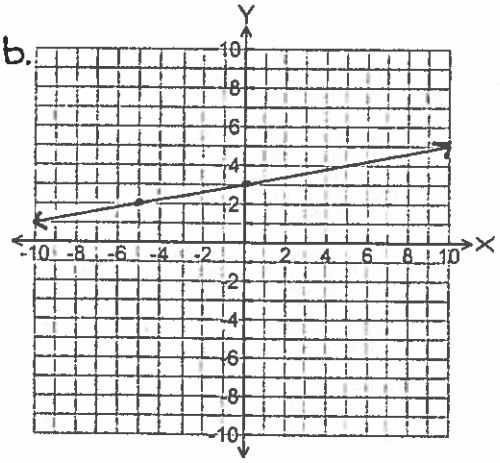
a. 66 b. 19 c. 29 d. 43

____ 37. Graph $y = \frac{1}{5}x + 3$.

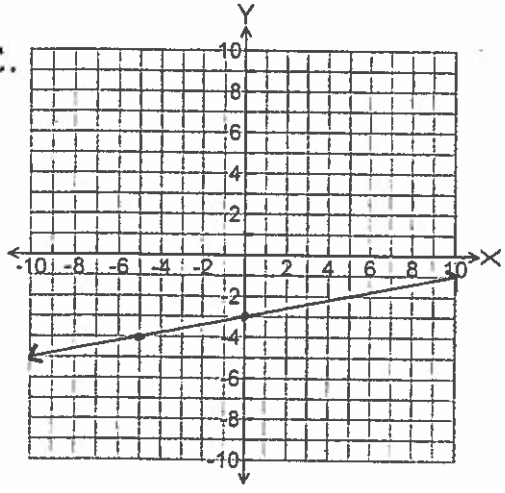
a.



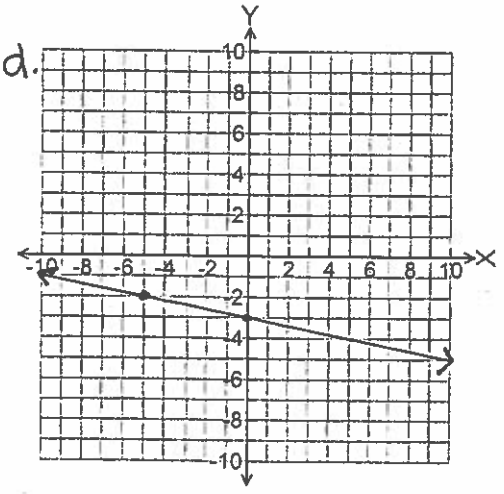
b.



c.

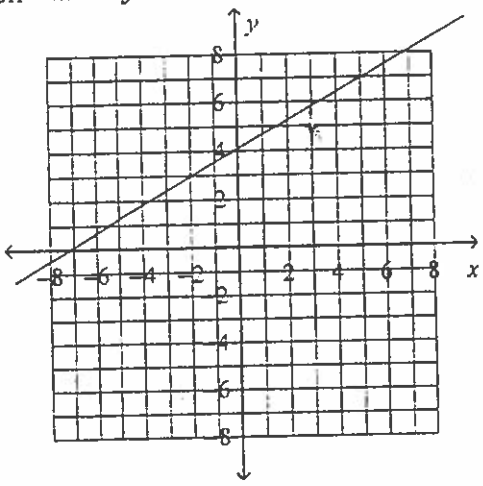


d.



____ 38. Graph $-4x + 7y = -28$.

a.



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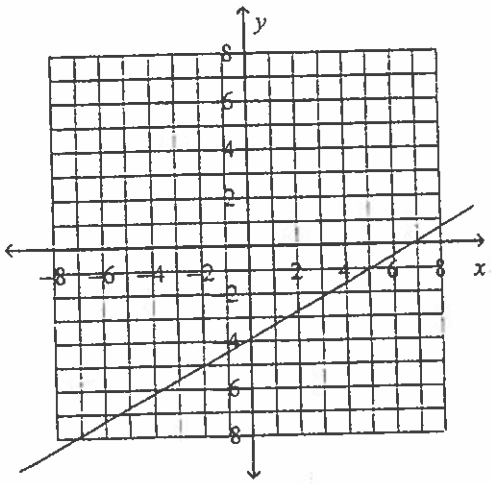
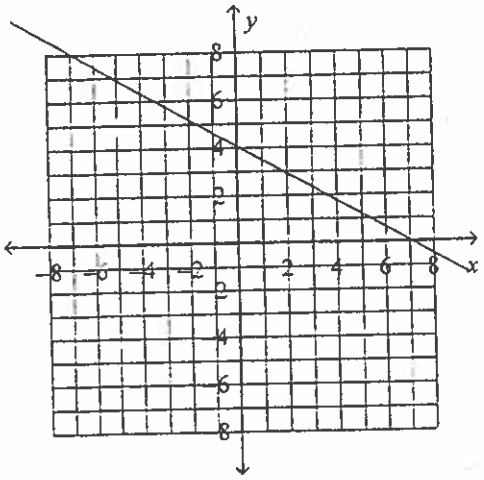
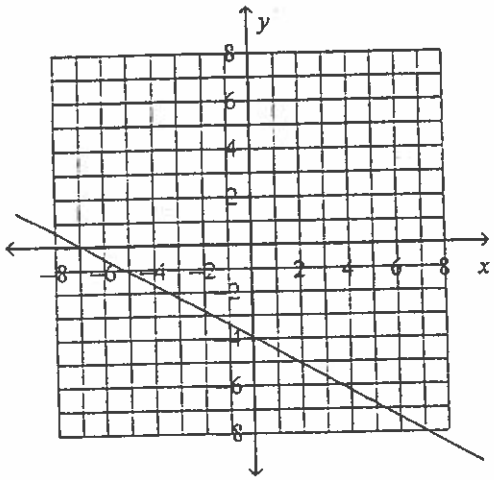


b.



d.

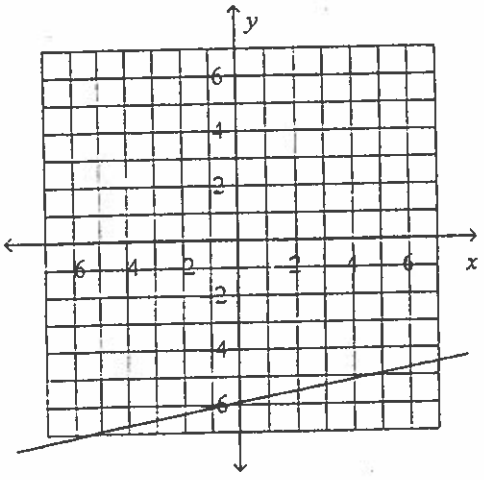


____ 39. Write an equation for the horizontal line that contains point $E(-3, -1)$.

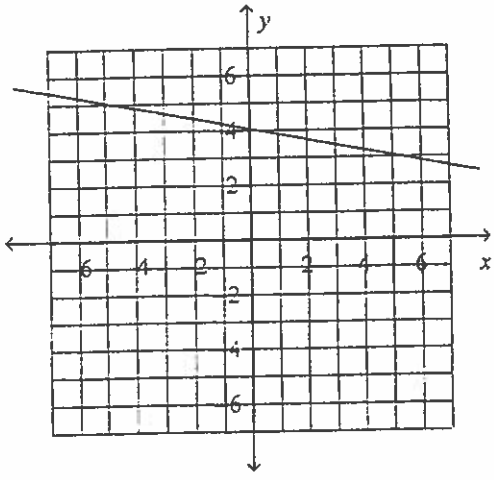
a. $x = -1$ b. $x = -3$ c. $y = -1$ d. $y = -3$

____ 40. Graph the line that goes through point $(-5, 5)$ with slope $\frac{1}{5}$.

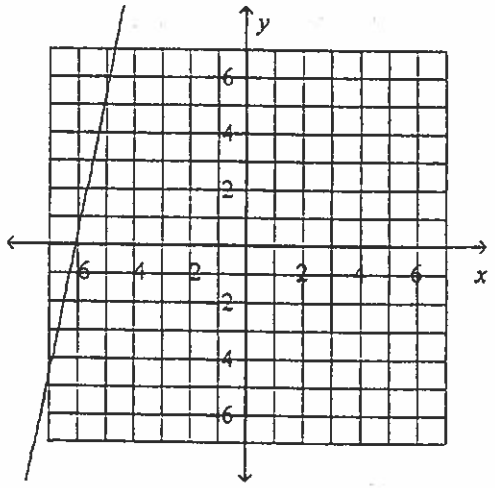
a.



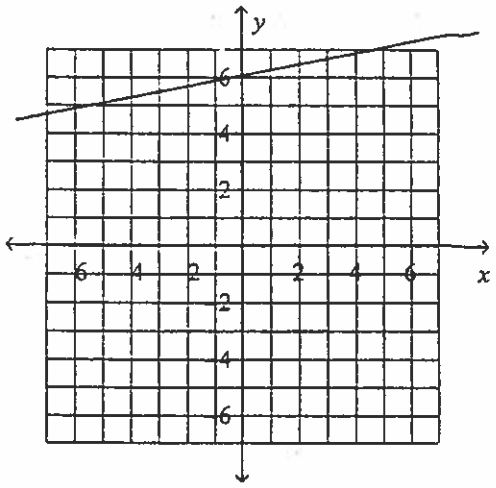
c.



b.



d.



____ 41. Write an equation in slope-intercept form of the line through point $P(-10, 1)$ with slope -5.

a. $y = -5x - 49$
b. $y - 1 = -5(x + 10)$
c. $y - 10 = -5(x + 1)$
d. $y = -5x + 1$

____ 42. Write an equation in slope-intercept form of the line through points $S(-10, -3)$ and $T(-1, 1)$.

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

____ 43. Is the line through points $P(0, 5)$ and $Q(-1, 8)$ parallel to the line through points $R(3, 3)$ and $S(5, -1)$? Explain.

a. No, the lines have unequal slopes.
b. Yes; the lines are both vertical.
c. Yes; the lines have equal slopes.
d. No, one line has slope, the other has no slope.

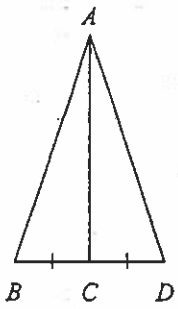
____ 44. Is the line through points $P(0, -9)$ and $Q(2, -8)$ perpendicular to the line through points $R(1, 4)$ and $S(3, 3)$? Explain.

a. Yes; their slopes are equal.
b. Yes; their slopes have product -1
c. No, their slopes are not reciprocals.
d. Yes; their slopes have product -1

____ 45. Are the lines $y = -x - 4$ and $5x + 5y = 20$ perpendicular? Explain.

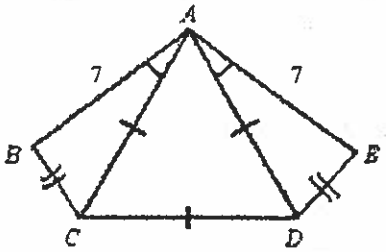
a. Yes; their slopes are equal.
b. Yes; their slopes have product -1.
c. No; their slopes are not equal
d. No; their slopes are not opposite reciprocals.

____ 46. What other information do you need in order to prove the triangles congruent using the SAS Congruence Postulate?



a. $\angle BAC \cong \angle DAC$
b. $\angle CBA \cong \angle CDA$
c. $\overline{AC} \perp \overline{BD}$
d. $\overline{AC} \cong \overline{BD}$

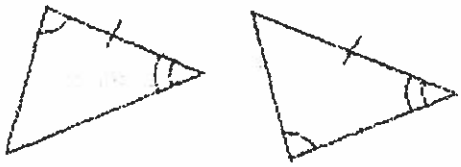
____ 47. State whether ΔABC and ΔAED are congruent. Justify your answer.



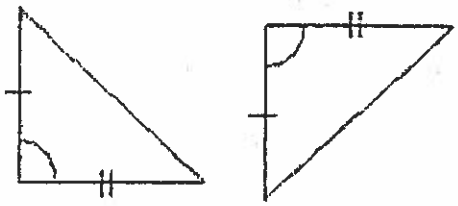
a. yes, by either SSS or SAS
b. yes, by SSS only
c. yes, by SAS only
d. No; there is not enough information to conclude that the triangles are congruent.

____ 48. In each pair of triangles, parts are congruent as marked. Which pair of triangles is congruent by ASA?

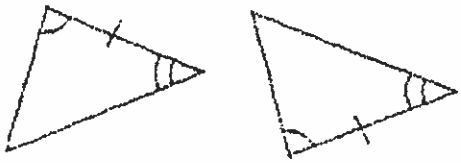
a.



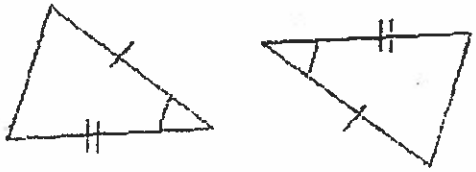
c.



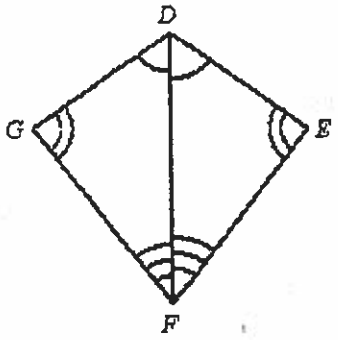
b.



d.

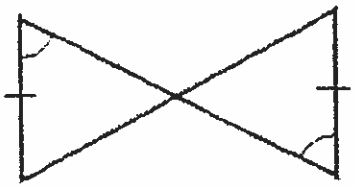


____ 49. From the information in the diagram, can you prove $\Delta FDG \cong \Delta FDB$? Explain.



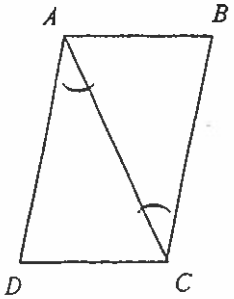
a. yes, by ASA
b. yes, by AAA
c. yes, by SAS
d. no

____ 50. Can you use the ASA Postulate, the AAS Theorem, or both to prove the triangles congruent?



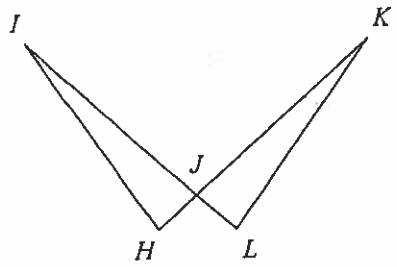
a. either ASA or AAS
b. ASA only
c. AAS only
d. neither

____ 51. What else must you know to prove the triangles congruent by ASA? By SAS?



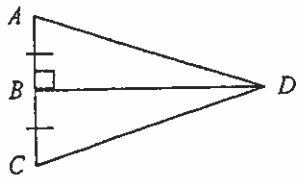
a. $\angle ACD \cong \angle CAB$; $\overline{AB} \cong \overline{CD}$
b. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$
c. $\angle ADC \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$
d. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{AC}$

___ 52. Based on the given information, what can you conclude, and why?
Given: $\angle H \cong \angle L$, $\overline{HJ} \cong \overline{JL}$



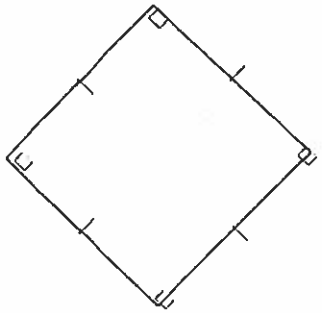
a. $\Delta HIJ \cong \Delta LKJ$ by ASA
b. $\Delta HIJ \cong \Delta JLK$ by SAS
c. $\Delta HIJ \cong \Delta JLK$ by ASA
d. $\Delta HIJ \cong \Delta LKJ$ by SAS

___ 53. 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

___ 54. Judging by appearance, classify the figure in as many ways as possible.

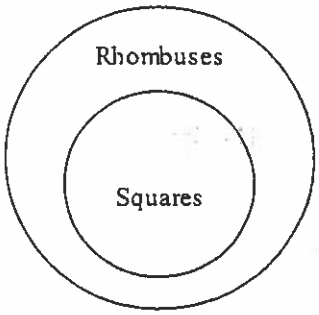


a. rectangle, square, quadrilateral, parallelogram, rhombus
b. rectangle, square, parallelogram
c. rhombus, trapezoid, quadrilateral, square
d. square, rectangle, quadrilateral

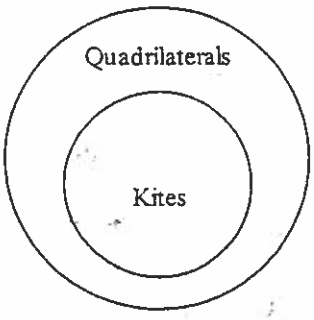
___ 55. Which statement is true?
a. All quadrilaterals are rectangles.
b. All quadrilaterals are squares.
c. All rectangles are quadrilaterals.
d. All quadrilaterals are parallelograms.

56. Which Venn diagram is NOT correct?

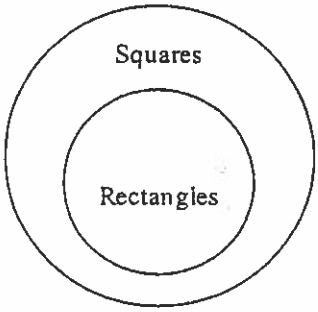
a.



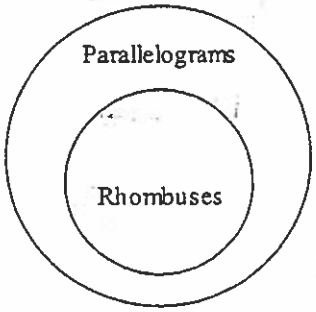
c.



b.

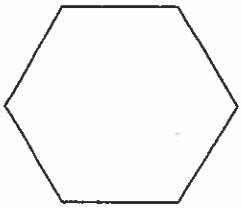


d.

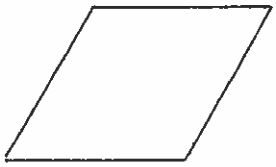


57. Judging by appearances, which figure is a trapezoid?

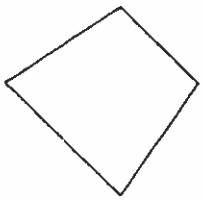
a.



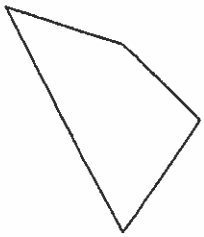
c.



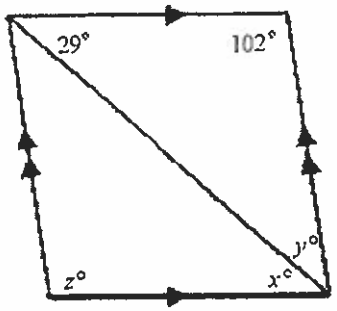
b.



d.

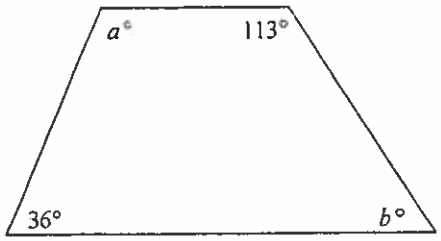


___ 58. Find the values of the variables in the parallelogram. The diagram is not to scale.



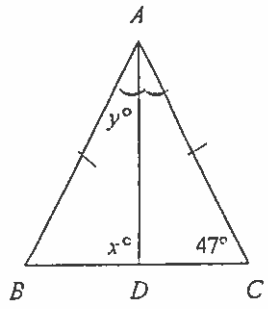
a. $x = 49, y = 29, z = 102$
b. $x = 29, y = 49, z = 131$
c. $x = 49, y = 49, z = 131$
d. $x = 29, y = 49, z = 102$

___ 59. Find the values of a and b.The diagram is not to scale.



a. $a = 144, b = 67$
b. $a = 144, b = 36$
c. $a = 113, b = 67$
d. $a = 113, b = 36$

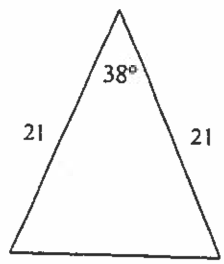
___ 60. Find the values of x and y.



Drawing not to scale

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

61. 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

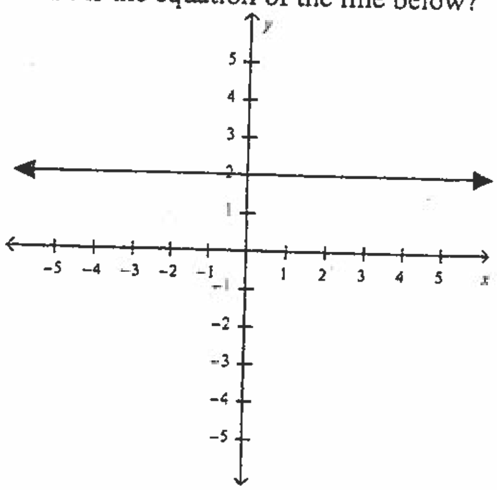
a. 71°

b. 142°

c. 152°

d. 76°

62. What is the equation of the line below?



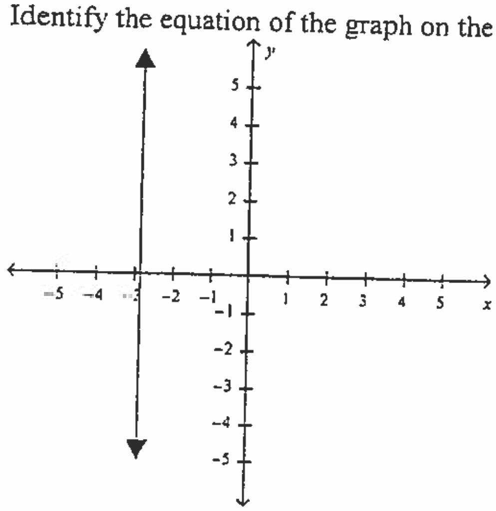
a. $y = 2$

b. $x = 2$

c. $y = 2x$

d. $y = x + 2$

63. Identify the equation of the graph on the coordinate plane below



a. $y = -3$

b. $x = -3$

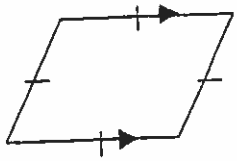
c. $y = -3x$

d. $y = x - 3$

___ 64. Which of the following quadrilaterals can also be classified as a rectangle?

a. parallelogram
b. rhombus
c. square
d. trapezoid

___ 65. Fill in the blank. This figure is a _____ and a _____.

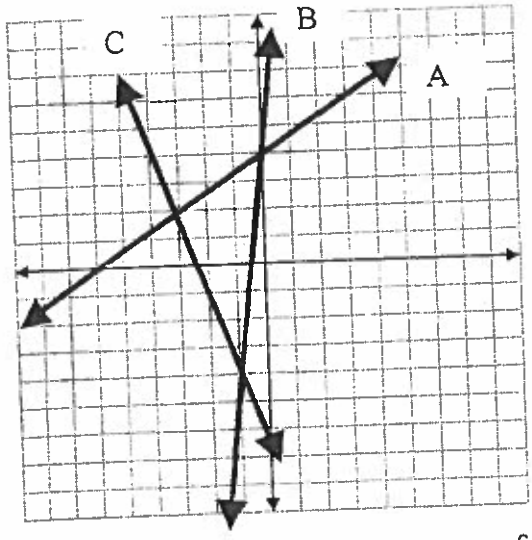


a. Rectangle and parallelogram
b. Rhombus and parallelogram
c. Rhombus and square
d. Parallelogram and trapezoid

___ 66. Which of the following quadrilaterals has diagonals that bisect each other and are perpendicular?

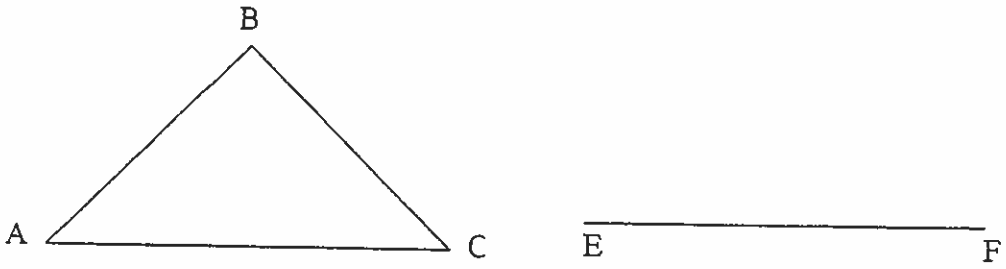
a. parallelogram
b. rhombus
c. kite
d. trapezoid

___ 67. Which of the following is the solution for the system involving line A and line B?



a. (-3,2)
b. (-1,-4)
c. (0,4)
d. (4,0)

68. Given ΔABC and segment $EF \cong AC$



Which of the following would be the first step to construct triangle congruent to ΔABC?

a. Construct a perpendicular segment at E
b. Construct an angle congruent to A at E
c. Construct the perpendicular bisector of EF
d. Measure angle A and draw it at point E

___ 69. Which procedure for solving an equation is NOT valid?

a. $x^2 - 16 = 0$
$x^2 = 16$
$x = \pm 4$

b. $3x + 6 = 12$
$3x = 6$
$x = 2$

c. $2x - 6 = 50$
$2x = 44$
$x = 22$

d. $x^2 - 4 = 0$
$(x-2)(x+2) = 0$
$x = \pm 2$

___ 70. Arrange the following in logical order:

I. If you catch a fish, you can eat.
II. If you get your license to drive, you can go on a camping trip.
III. If you are 16, you can get your license to drive.
IV. If you go on a camping trip, you will get to catch a fish.

a. I, II, III, IV
b. III, II, IV, I
c. IV, III, I, II
d. II, I, IV, III

___ 71. I will be a the movies tonight or I will be bowling. I will not be bowling. Therefore, I will be at the movies. Decide if the argument above is valid or invalid. If it is valid state the rule used.

a. "Or Rule"
b. Law of syllogism
c. Direct argument
d. invalid argument

___ 72. If a quadrilateral is a square then it has four right angles. A quadrilateral has 4 right angles. Therefore it is a square.
Decide if the argument above is valid or invalid. If it is valid state the rule used.

a. "Or Rule"
b. Chain rule or Law of syllogism
c. Direct argument or law of detachment
d. invalid argument