Geometry Midterm Review

Topics Covered:

Exam covers Chapter 1-7 & Chapter 12 (Transformations)

Formulas: Know the formula for each and know when to use each formula.

- pythagorean thoerem
- midpoint formula
- slope-intercept form of a linear equation
- distance formula
- slope between 2 points

Chapter 1: Intro to geometry

- basic geometry notation
- collinear
- ruler postulate
- angle addition postulate
- *individual angles*
  acute, obtuse, right, straight
- points, lines, planes
- perpendicular vs parallel
- segment addition postulate
- bisect
- *special pairs of angles*
  adjacent, vertical, complementary, supplementary, linear pair

Chapter 2: Reasoning

- make conjectures
- converse, inverse, contrapositive
- conditional statements

Chapter 3: Perpendicular & Parallel Lines

- transversal
- alt. int. angles
- corresponding angles
- proving lines are parallel
- parallel, perpendicular, skew
- alt. ext. angles
- consecutive int. angles

Chapter 4: Triangles and Congruence

- Classifying Triangles
- Angle Relationships in Triangles
- Exterior Angle Theorem
- Isosceles and Equilateral Triangles

Chapter 5: Triangles Properties and Inequalities

- Medians, Altitudes, and Perpendicular Bisectors
- Points of Concurrency: Centroid, Orthocenter, Incenter, Circumcenter
- Arrange sides or $\angle$s from smallest to greatest
- Determine if the given sides can form a Δ
- Classify a triangle as acute, obtuse, or right by using the Pythagorean's theorem inequality

Chapter 6: Polygons and Quadrilaterals

- Identify Polygons by sides or angles
- Calculate Sum of interior angles
- Calculate interior angles and exterior angles
- Know and apply special parallelogram properties
- Know and apply trapezoid properties
- Know and apply trapezoid midsegment theorem

Chapter 7: Similarity

- Know and Recognize similar polygons
- Use ratios to solve for missing sides of similar triangles
- Use the side-splitter theorem, angle-bisector theorem
- Use proportions to solve for missing sides of similar right triangles (altitude to hypotenuse)

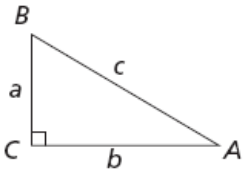
Chapter 12: Transformations

- Reflections, Rotations, Dilations, Translations, and Symmetry
- Know and Write Compositions

Geometry – Things to Remember!

Right-Triangle Relationships

Trigonometric Ratios

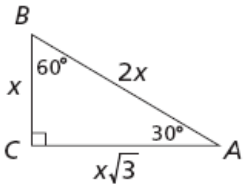


$\sin A = \frac{a}{c}$

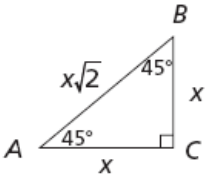
$\cos A = \frac{b}{c}$

$\tan A = \frac{a}{b}$

30°–60°–90° Triangle Relationships



45°–45°–90° Triangle Relationships



Polygon Interior/Exterior Angles:

Sum of int. angles = $180(n-2)$

Each int. angle (regular) = $\frac{180(n-2)}{n}$

Sum of ext. angles = 360

Each ext. angle (regular) = $\frac{360}{n}$

Triangles:
By Sides:
Scalene – no congruent sides
Isosceles – 2 congruent sides
Equilateral – 3 congruent sides

By Angles:
Acute – all acute angles
Right – one right angle
Obtuse – one obtuse angle
Equiangular – 3 congruent angles(60°)
Equilateral ↔ Equiangular

Exterior angle of a triangle equals the sum of the 2 non-adjacent interior angles.

Mid-segment of a triangle is parallel to the third side and half the length of the third side.

Linear Equation Forms

Point–Slope Form:

$$y - y_1 = m(x - x_1)$$

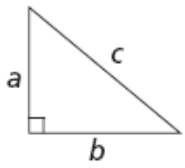
Standard or General Form:

$$Ax + By = C$$

Slope–Intercept Form:

$$y = mx + b$$

Pythagorean Theorem



$$c^2 = a^2 + b^2$$

Coordinate Geometry

Given: Points $A(x_1, y_1)$, $B(x_2, y_2)$

Distance between two points:

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint between two points:

$$\text{Midpoint of } \overline{AB} = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$$

Slope of line through two points:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Circles:

Equation of circle center at origin:

$x^2 + y^2 = r^2$ where r is the radius.

Equation of circle not at origin:

$(x-h)^2 + (y-k)^2 = r^2$ where (h,k) is the center and r is the radius.

Related Conditionals:

Converse: switch if and then

Inverse: negate if and then

Contrapositive: inverse of the converse (contrapositive has the same truth value as the original statement)

Mean Proportional in Right Triangle:

Altitude Rule:

$$\frac{\text{part of hyp}}{\text{altitude}} = \frac{\text{altitude}}{\text{other part hyp}}$$

Leg Rule:

$$\frac{\text{hypotenuse}}{\text{leg}} = \frac{\text{leg}}{\text{projection}}$$

Inequalities:

--Sum of the lengths of any two sides of a triangle is greater than the length of the third side.

--Longest side of a triangle is opposite the largest angle.

--Exterior angle of a triangle is greater than either of the two non-adjacent interior angles.

Name: **Date:** .

1. Which set of numbers could represent the lengths of the sides of a triangle?
   (1) {1,1,3} (3) {1,2,3}
   (2) {1.7,3.6,5.3} (4) {2.2,3.3,4}

2. Which set of numbers can represent the lengths of the sides of a triangle?
   (1) {2,3,5} (3) {5,5,10}
   (2) {4,8,13} (4) {5,6,10}

3. Which set of numbers could represent the lengths of the sides of a triangle?
   (1) {6,8,9} (3) {2,2,5}
   (2) {1,2,3} (4) {2,6,9}

4. Which set of numbers could be the lengths of the sides of a triangle?
   (1) {6,7,13} (3) {5,5,11}
   (2) {12,13,20} (4) {3,6,9}

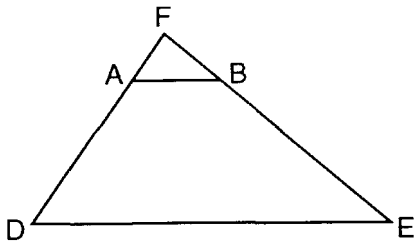
5. If two angles of a triangle measure 56º and 68º, the triangle is
   (1) scalene (3) obtuse
   (2) isosceles (4) right

6. If two angles of a triangle measure 43º and 48º, the triangle is
   (1) acute (3) isosceles
   (2) obtuse (4) right

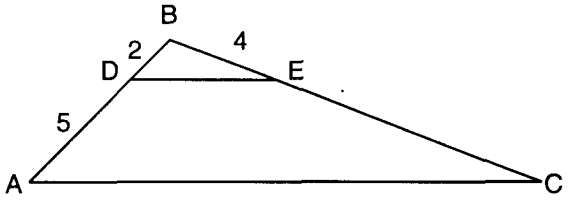
7. If the measures of three angles of a triangle are represented by $(y + 30)°$, $(4y + 30)°$, and $(10y – 30)°$, then the triangle must be
   (1) obtuse (3) scalene
   (2) isosceles (4) right

8. If the measures of the angles of a triangle are rep resented by $2x$, $4x$, and $6x$, then the triangle is
   (1) right (3) acute
   (2) obtuse (4) equiangular

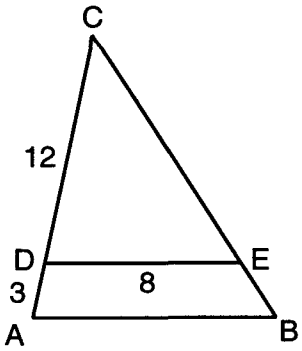
9. In the accompanying diagram of ΔDEF, $\overline{AB} \parallel \overline{DE}$, $AF = 4$, $DF = 16$, and $FE = 20$. What is the length of $\overline{FB}$?



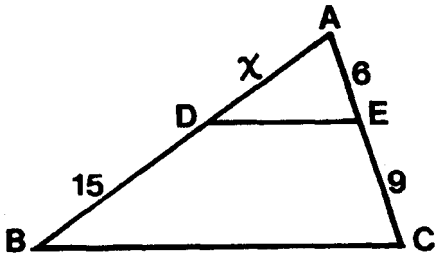
10. In the accompanying diagram of ΔABC, $\overline{DE} \parallel \overline{AC}$, $BD = 2$, $BE = 4$, and $DA = 5$. Find the length of $\overline{BC}$.



11. In the accompanying diagram of ΔABC, $\overline{DE} \parallel \overline{AB}$, $DE = 8$, $CD = 12$, and $DA = 3$. Find the length of $\overline{AB}$.



12. In the accompanying diagram of ΔABC, $\overline{DE} \parallel \overline{BC}$, $AD = x$, $AE = 6$, $DB = 15$, and $EC = 9$. Find x.



13. In ΔGEM, $m\angle G = 37$ and $m\angle M = 100$. Which side of ΔGEM is the longest?

14. In ΔKID, $m\angle K = 40^o$ and $m\angle D = 80^o$. Which side of ΔKID is the shortest?

15. In ΔABC, $m\angle A = 35^o$ and $m\angle C = 77^o$. Which is the longest side of the triangle?

16. In ΔSUM, $m\angle S = 75^o$ and $m\angle U = 43^o$. Which side of ΔSUM is the *shortest*?

17. What type of regular polygon has an interior angle of a 60º?

(1) triangle (3) heptagon (septagon)
(2) heptagon (4) octagon

18. What type of regular polygon has an interior angle of a 135º?

(1) pentagon (3) heptagon (septagon)
(2) hexagon (4) octagon

19. The number of sides of a regular polygon whose interior angles each measure 108° is

(1) 5 (3) 7
(2) 6 (4) 4

20. A parallelogram must be a rectangle if its diagonals

(1) are congruent
(2) bisect each other
(3) bisect the angles through which they pass
(4) are perpendicular to each other

21. In which quadrilateral are the diagonals always perpendicular?

(1) trapezoid (3) parallelogram
(2) square (4) rectangle

22. A parallelogram must be a rhombus if the
    (1) diagonals are perpendicular
    (2) opposite angles are congruent
    (3) diagonals are congruent
    (4) opposite sides are congruent

23. If the diagonals of a parallelogram are perpendicular and not congruent, then the parallelogram is
    (1) a rectangle
    (2) a rhombus
    (3) a square
    (4) an isosceles trapezoid

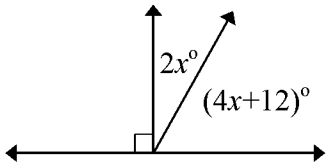
24. What is the midpoint of a line segment whose endpoints are $A(-3,5)$ and $B(5,-11)$
    (1) (2,3)
    (2) (–2,–3)
    (3) (2,–3)
    (4) (4,8)

25. The coordinates of A are (–9,2) and the coordinates of G are (3,14). What are the coordinates of the midpoint of $\overline{AG}$?
    (1) (–3,8)
    (2) (–6,6)
    (3) (–6,16)
    (4) (–21,–10)

26. Line segment $\overline{AB}$ has midpoint M. If the coordinates of A are (2,3) and the coordinates of M are (–1,0), what are the coordinates of B?
    (1) (1,3)
    (2) $(\frac{1}{2}, \frac{3}{2})$
    (3) (–4, –3)
    (4) (–4,6)

27. Point C (3,4) is the midpoint of $\overline{AB}$. If the coordinates of A are (7,6), the coordinates of B are
    (1) (–1,2)
    (2) (2,1)
    (3) (5,5)
    (4) (11,8)

28. Find the degree measure of the smallest angle in the diagram below.



29. The measures of two complementary angles are represented by $(3x + 15)$ and $(2x – 10)$. What is the value of x?

(1) 17 (3) 35

(2) 19 (4) 37

30. If the measure of two complementary angles are in the ratio of 2:3, the degree measure of the smaller angle is

(1) 12 (3) 32

(2) 16 (4) 36

31. If the measures of two complementary angles are in the ratio 1:5, the measure of the larger angle is

(1) 72º (3) 144º

(2) 75º (4) 150º

32. Which statement is the contrapositive of "If a regular polygon is a regular hexagon, each angle measures 120º"?

(1) If each angle of a regular polygon measures 120º, the polygon is a regular hexagon.

(2) If each angle of a regular polygon does not measure 120º, the polygon is not a regular hexagon.

(3) If a polygon is not a regular hexagon, each angle does not measure 120º.

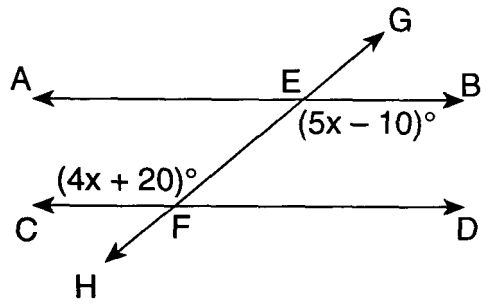
(4) If a polygon is a regular hexagon, the polygon has six equal sides.

33. Which is logically equivalent to the statement, "If I live in New York, then I live in the United States"?
    (1) If I live in the United States, then I live in New York.
    (2) If I do not live in New York, then I do not live in the United States.
    (3) If I do not live in the United States, then I do not live in New York.
    (4) If I do not live in the United States, then I live in New York.

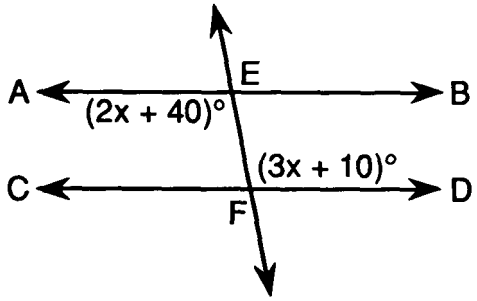
34. Which is logically equivalent to the statement, "If Jeff passes math, then he will be happy"?
    (1) Jeff passes math and he is happy.
    (2) If Jeff does not pass math, then he will be happy.
    (3) If Jeff passes math, then he will not be happy.
    (4) If Jeff is not happy, then Jeff did not pass math.

35. Which statement is logically equivalent to "If Andrea gets a job, she buys a new car"?
    (1) Andrea gets a job and she buys a new car.
    (2) If Andrea does not buy a new car, she does not get a job.
    (3) If Andrea does not get a job, she does not buy a new car.
    (4) If Andrea buys a new car, she gets a job.

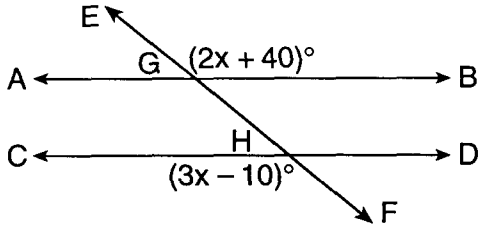
36. In the accompanying diagram, parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are intersected by $\overleftrightarrow{GH}$ at E and F, respectively. If $m\angle BEF = 5x - 10$ and $m\angle CFE = 4x + 20$, find x.



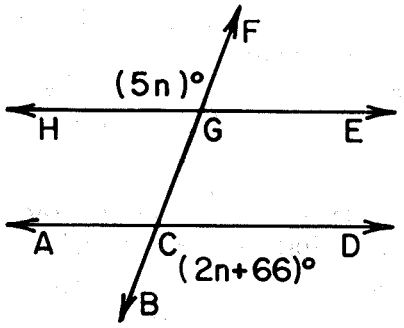
37. In the accompanying diagram, $\overleftrightarrow{AEB} \parallel \overleftrightarrow{CFD}$ and $\overleftrightarrow{EF}$ is a transversal. If $m\angle AEF = 2x + 40$ and $m\angle EFD = 3x + 10$, find x.



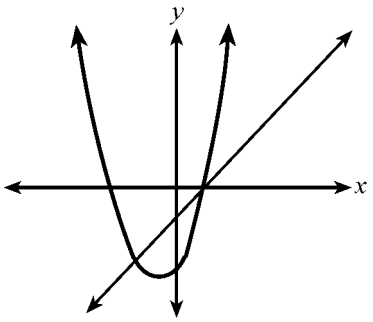
38. In the accompanying diagram, transversal $\overleftrightarrow{EF}$ intersects parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ at G and H, respectively. If $m\angle EGB = 2x + 40$ and $m\angle FHC = 3x - 10$, what is the value of x?



39. In the accompanying diagram, parallel lines $\overleftrightarrow{HE}$ and $\overleftrightarrow{AD}$ are cut by transversal $\overleftrightarrow{BF}$ at points G and C, respectively. If $m\angle HGF = 5n$ and $m\angle BCD = 2n + 66$, find n.



40. The accompanying diagram shows the graphs of a linear equation and a quadratic equation.



How many solutions are there to this system of equations?

(1) 1 (3) 3

(2) 2 (4) 0

41. Which ordered pair is a solution of the system of equations $y = x^2 + 6$ and $y = x + 6$?

(1) (1,6) (3) (0,6)

(2) (2,8) (4) (2,10)

42. Which is a solution for the following system of equations?

$$y = x^2$$
$$y = -4x + 12$$

(1) (–2,4) (3) (2,4)

(2) (6,36) (4) (–6,24)

43. Which is a solution for the following system of equations?

$$y = x^2$$
$$y = -2x + 15$$

(1) (–3,9) (3) (3,9)

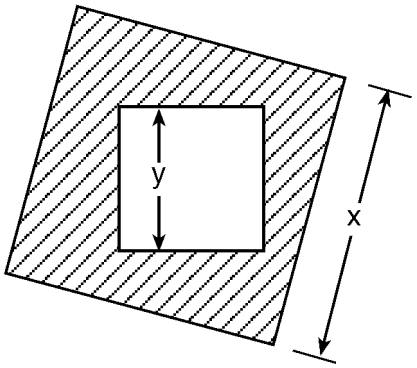
(2) (5,25) (4) (–5,3)

44. If the graphs of the equations $y = x + 2$ and $y = x^2 - 3x + 6$ are drawn on the same set of axes, at which point will the graphs intersect?

(1) (–2,0) (3) (1,4)

(2) (1,3) (4) (2,4)

45. The accompanying diagram shows a square with side y inside a square with side x.

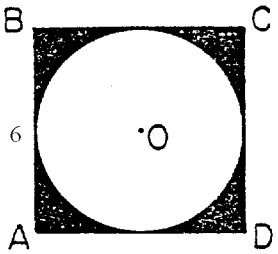


Which expression represents the area of the shaded region?

(1) x^2 (3) $y^2 - x^2$

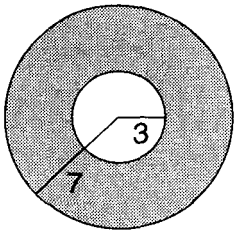
(2) y^2 (4) $x^2 - y^2$

46. The following diagram represents an overview of Mrs. Morris' square backyard, *ABCD*. Her backyard has a circular picnic table right in the center, leaving room for only four chairs, one at every corner of the backyard. In order to figure out what size chairs to buy, she must find out the area left in her backyard after her table is placed into it. What is the area of the remaining space in her backyard?



(1) $24 - 12\pi$
(2) $24 - 6\pi$
(3) $36 - 36\pi$
(4) $36 - 9\pi$

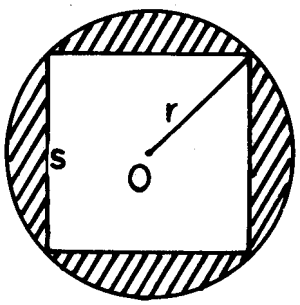
47. In the diagram below, the radii of the two con centric circles are 3 and 7, respectively.



What is the area of the shaded region?

(1) 80π
(2) 40π
(3) 8π
(4) 4π

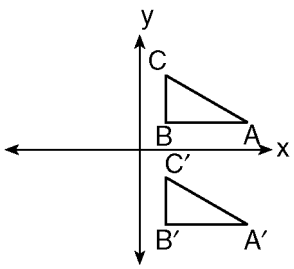
48. As shown in the accompanying diagram, a square with side s is inscribed in a circle with radius r. Which expression represents the area of the shaded region?



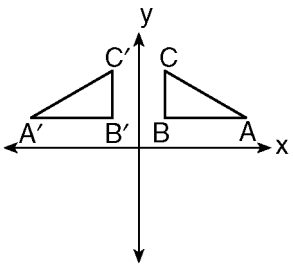
(1) $s^2 - \pi r^2$
(2) $\pi r^2 - s^2$
(3) $\pi r^2 - 4s$
(4) $4s - \pi r^2$

49. Which graph shows a reflection of *ABC* in the *x*-axis?

(1)



(2)



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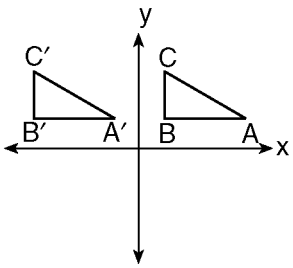

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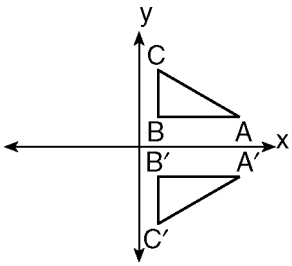
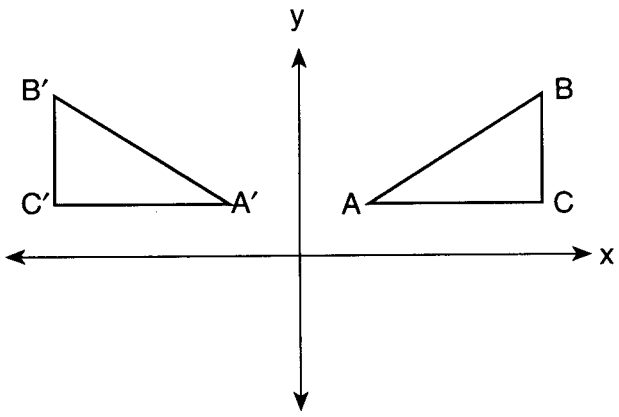


50. In the accompanying diagram, $\Delta A'B'C'$ is the image of ΔABC.

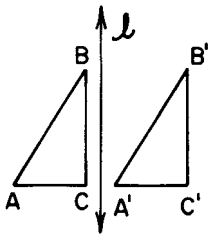


Which type of transformation is shown?

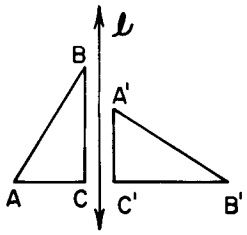
(1) rotation
(2) reflection
(3) translation
(4) dilation

51. In which figure is $\Delta A'B'C'$ a reflection of ΔABC in line ℓ?

(1)



(3)



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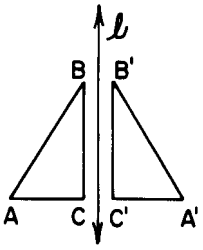
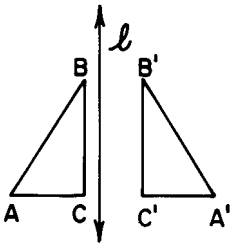
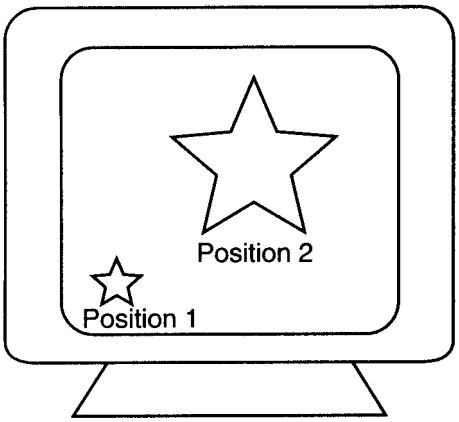


(4)



52. As shown in the accompanying diagram, the star in position 1 on a computer screen transforms to the star in position 2.



This transformation is best described as a

(1) line reflection
(2) translation
(3) rotation
(4) dilation

53. Which transformation does *not* always result in an image that is congruent to the original figure?

(1) dilation
(2) reflection
(3) rotation
(4) translation

54. Which transformation moves point (x,y) to point $(4x,4y)$?
    (1) dilation (3) rotation
    (2) reflection (4) translation

55. What is the image of (4,–1) after a dialation of 2?
    (1) (6,1) (3) (6,–1)
    (2) (2,–3) (4) (8,–2)

56. A quadrilateral must be a parallelogram if one pair of opposite sides is
    (1) congruent, only.
    (2) parallel, only.
    (3) congruent and parallel.
    (4) parallel and the other pair of opposite sides is congruent.

57. In quadrilateral *ABCD*, $\overline{AB} \cong \overline{CD}$ and $\overline{AB} \parallel \overline{CD}$. Which statement *must* be true?
    (1) The diagonals bisect the angles of the quadrilateral.
    (2) The quadrilateral is a parallelogram.
    (3) The diagonals are equal in length.
    (4) The diagonals are perpendicular.

58. The statement "If x is prime, then it is odd" is *false* when x equals
    (1) 1 (3) 3
    (2) 2 (4) 4

59. The statement "If x is a prime number, then it is divisible by 7" is false when x equals
    (1) 13 (3) 28
    (2) 7 (4) 1

60. The statement "x is divisible by 5 or x is divisible by 4" is *false* when x equals

(1) 10 (3) 20

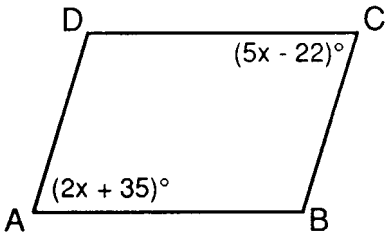
(2) 16 (4) 27

61. The statement "x is *not* the square of an integer and x is a multiple of 3" is true when x is equal to

(1) 9 (3) 32

(2) 18 (4) 36

62. In the accompanying figure, $ABCD$ is a parallelogram, $m\angle A = 2x + 35$, and $m\angle C = 5x - 22$. Find the value of x.

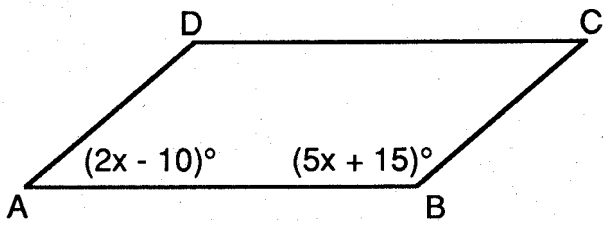


63. In parallelogram $ABCD$, $m\angle A = 2x + 50$ and $m\angle C = 3x + 40$. The measure of $\angle A$ is

(1) 18° (3) 70°

(2) 20° (4) 86°

64. In the accompanying diagram of parallelogram $ABCD$, $m\angle A = 2x - 10$ and $m\angle B = 5x + 15$. Find x.



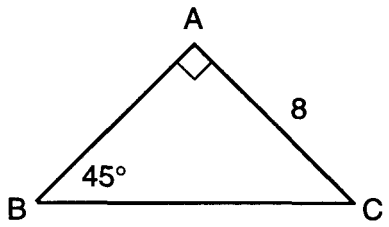
65. In parallelogram $DATE$, $m\angle D = 8x - 20$ and $m\angle A = 2x + 30$. Find x.

66. The sides of ΔABC are 6.8, 6.8, and 8.4 meters. Find the perimeter of the triangle that is formed by joining the midpoints of the sides of ΔABC.

67. The measures of the three sides of a triangle are 6, 8, and 10 centimeters. The midpoints of the three sides are joined to form a second triangle. How many centimeters are in the perimeter of the second triangle?

68. If a triangle has sides of 6, 8, and 12, what is the perimeter of the triangle formed by connecting the midpoints of the sides of the original triangle?

69. In the diagram below of right triangle BAC, $m\angle A = 90°$, $m\angle B = 45°$, and $AC = 8$.

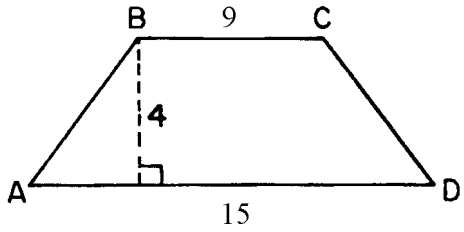


What is the length of $\overline{BC}$?

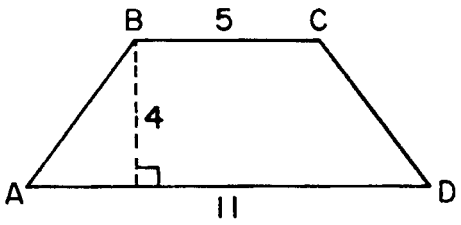
(1) $8\sqrt{3}$ (3) $4\sqrt{2}$

(2) $8\sqrt{2}$ (4) $16\sqrt{2}$

70. In the accompanying figure, isosceles trapezoid $ABCD$ has bases of lengths 9 and 15 and an altitude of length 4. Find AB.



71. In the accompanying figure, isosceles trapezoid *ABCD* has bases of lengths 5 and 11 and an altitude of length 4. Find *AB*.



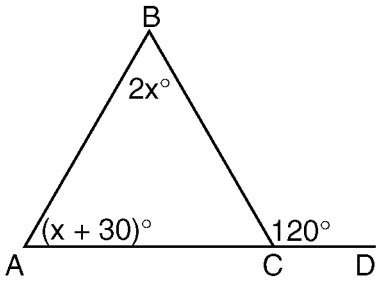
72. The lengths of the bases of an isosceles trapezoid are 20 and 44, and the length of the altitude is 16. Find the length of a leg of the trapezoid.

73. The altitude drawn to the hypotenuse of a right triangle divides the hypotenuse into segments of lengths 4 and 12. The length of the shorter leg of the right triangle is

(1) 8
(2) $\sqrt{20}$
(3) $\sqrt{48}$
(4) $\sqrt{192}$

74. The altitude to the hypotenuse of a right triangle divides the hypotenuse into segments whose lengths are 12 and 50. What is the length of the altitude to the *nearest tenth*?

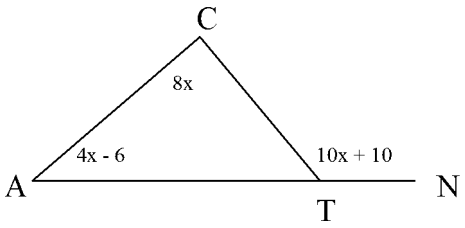
75. In the accompanying diagram of ΔABC, $\angle BCD$ is an exterior angle formed by extending $\overline{AC}$ to *D*, $m\angle A = x + 30$, $m\angle B = 2x$, and $m\angle BCD = 120$.



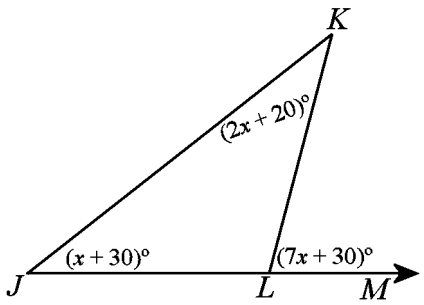
What is the value of *x*?

(1) 20
(2) 30
(3) 60
(4) 90

76. In the accompanying diagram of triangle CAT, segment AT is extended to N. Find the value of x.

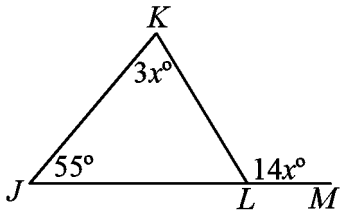


77. In the diagram below of ΔJKL, $\overline{JL}$ is extended to M. If $m\angle JKL = 2x + 20$, $m\angle KJL = x + 30$, and $m\angle CBD = 7x + 30$, what is $m\angle KLJ$?



(1) 30
(2) 65
(3) 115
(4) 130

78. In the diagram below, $\angle KLM$ is an exterior angle of ΔKLM, $m\angle K = 3x$, $m\angle KLM = 14x$, and $m\angle J = 55$. What is the value of x?



(1) 5
(2) 10
(3) 15
(4) 20

79. A translation maps (x, y) to $(x - 5, y + 3)$. In which quadrant does the point (–3,–2) lie under the same translation?

(1) I
(2) II
(3) III
(4) IV

80. In which quadrant does the image of (4,–7) lie after the translation that shifts (x,y) to $(x - 6, y + 3)$?

81. After the translation that shifts (x,y) to $(x + 2,y – 2)$, the image of point $B(–3,0)$ lies in Quadrant
(1) I (3) III
(2) II (4) IV

82. The translation $(x,y) \rightarrow (x – 2,y + 3)$ maps the point (7,2) onto the point whose coordinates are
(1) (9,5) (3) (5,–1)
(2) (5,5) (4) (–14, 6)

83. Which property best describes the coordinate graph of two distinct perpendicular lines?
(1) same slopes and same intercepts
(2) same slopes and distinct intercepts
(3) slopes that are negative reciprocal slopes
(4) different slopes with same intercepts

84. Lines l and m are perpendicular. The slope of l is $\frac{3}{5}$. What is the slope of m?
(1) $-\frac{3}{5}$
(2) $-\frac{5}{3}$
(3) $\frac{3}{5}$
(4) $\frac{5}{3}$

85. Which equation represents the line that passes through point (0,6) and is perpendicular to the line whose equation is $y = 3x – 2$?
(1) $y = -\frac{1}{3}x + 6$ (3) $y = –3x + 6$
(2) $y = \frac{1}{3}x + 6$ (4) $y = 3x + 6$

86. Write an equation of the line which passes through the point (0,4) and is perpendicular to the line whose equation is $y = -\frac{1}{2}x + 3$.

87. What is the preimage of the point (–2,4) before a 90° counterclockwise rotation about the origin?

(1) (–4,–2) (3) (2,–4)

(2) (4,2) (4) (2,4)

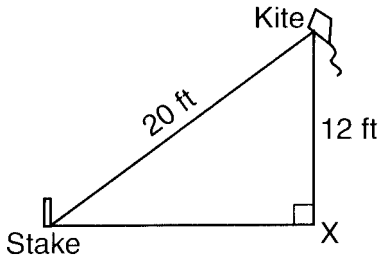
88. The length of a side of an equilateral triangle is represented by $2x - 1$. If the perimeter of the triangle is 21, what is the value of x?

89. What is the area of an equilateral triangle whose side is 4?

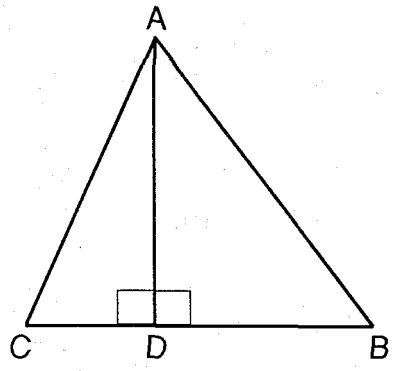
(1) $4\sqrt{3}$ (3) $8\sqrt{3}$

(2) 8 (4) $16\sqrt{3}$

90. The accompanying diagram shows a kite that has been secured to a stake in the ground with a 20-foot string. The kite is located 12 feet from the ground, directly over point X. What is the distance, in feet, between the stake and point X?



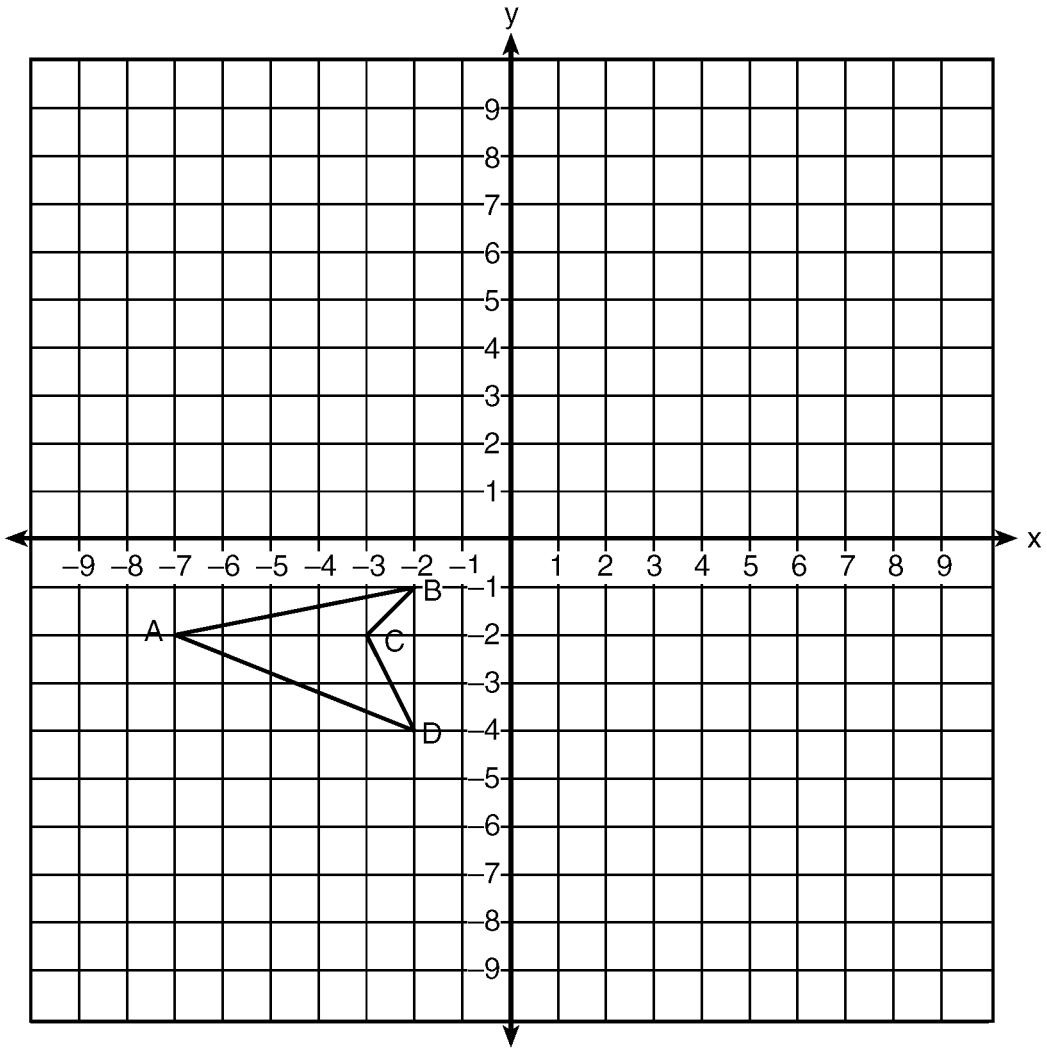
91. In ΔABC, altitude $\overline{AD}$ is drawn to base $\overline{BC}$. If $AD = 12$, $AB = 15$, and $AC = 13$, what is BC?



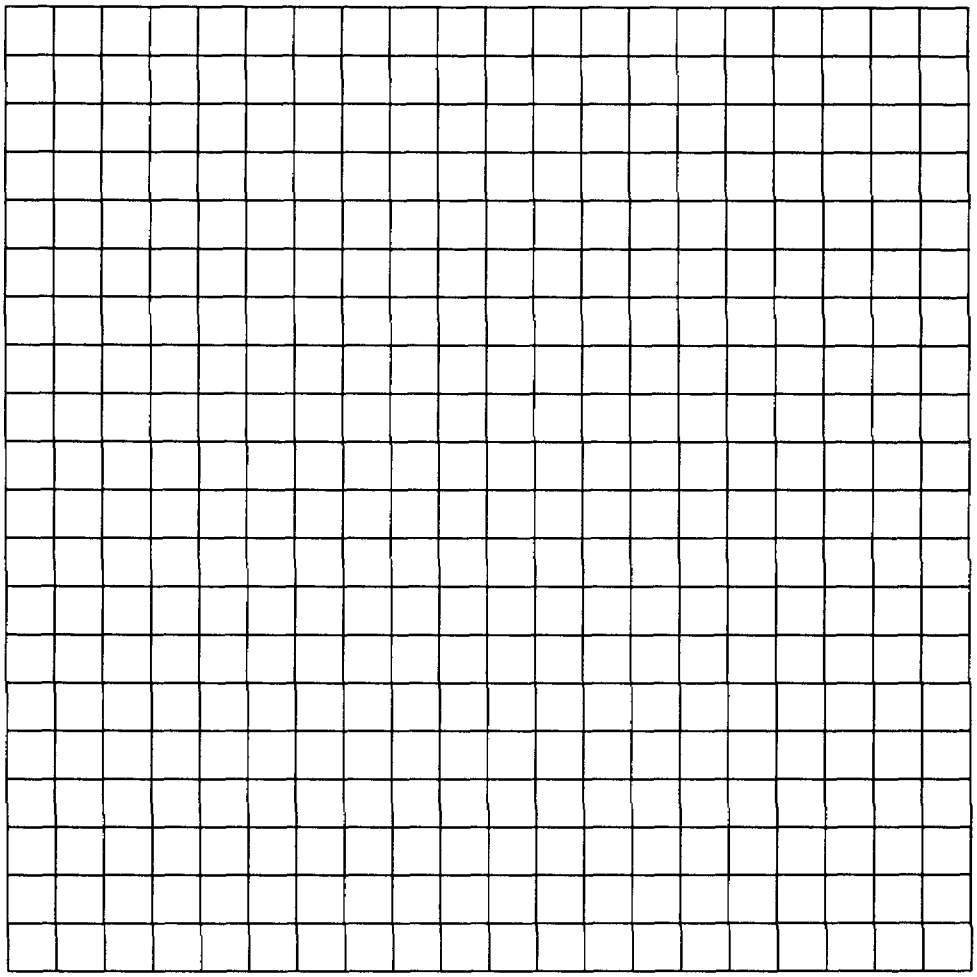
(1) 5 (3) 14

(2) 9 (4) 42

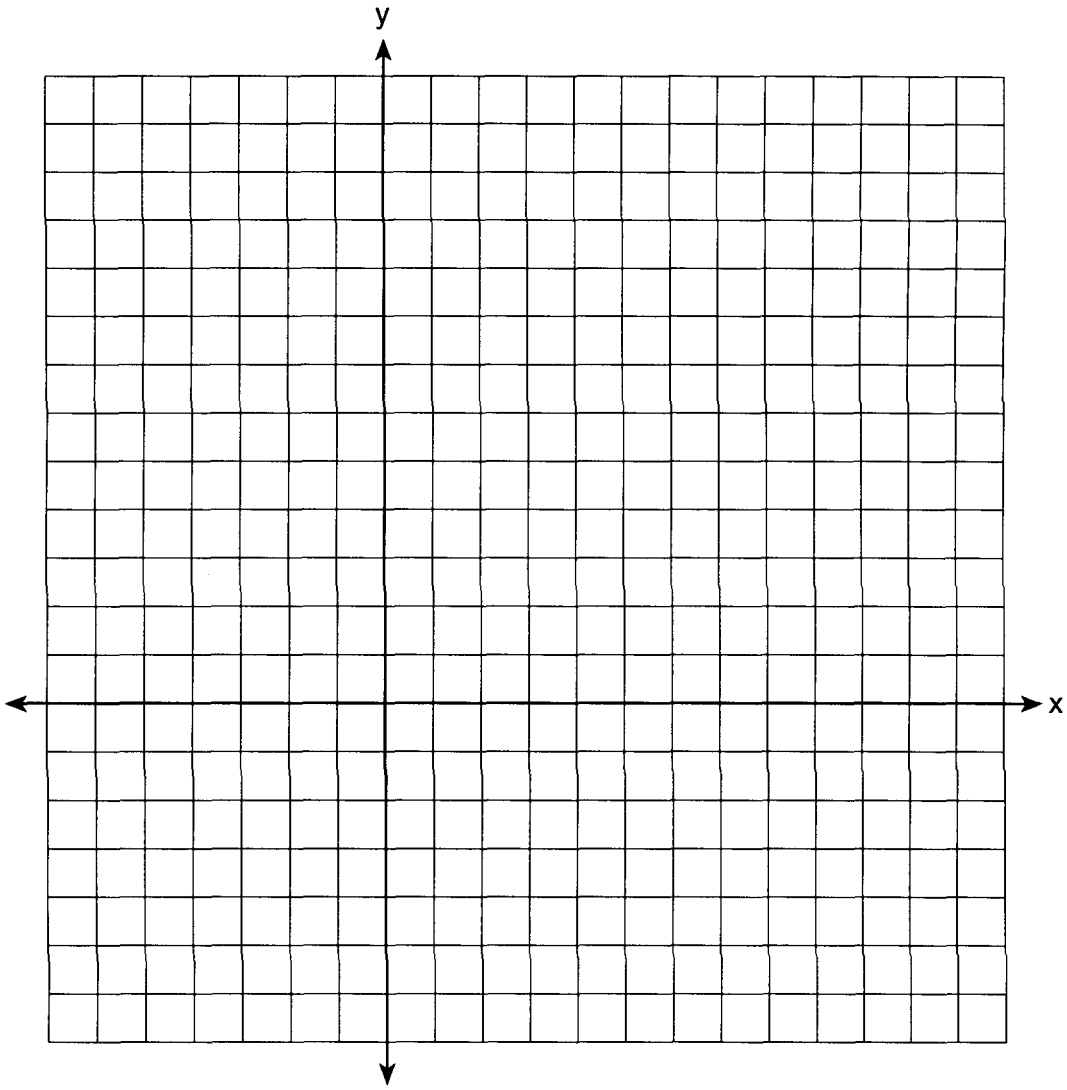
92. On the accompanying set of axes, draw the reflection of *ABCD* in the *y*-axis. Label and state the coordinates of the reflected figure.



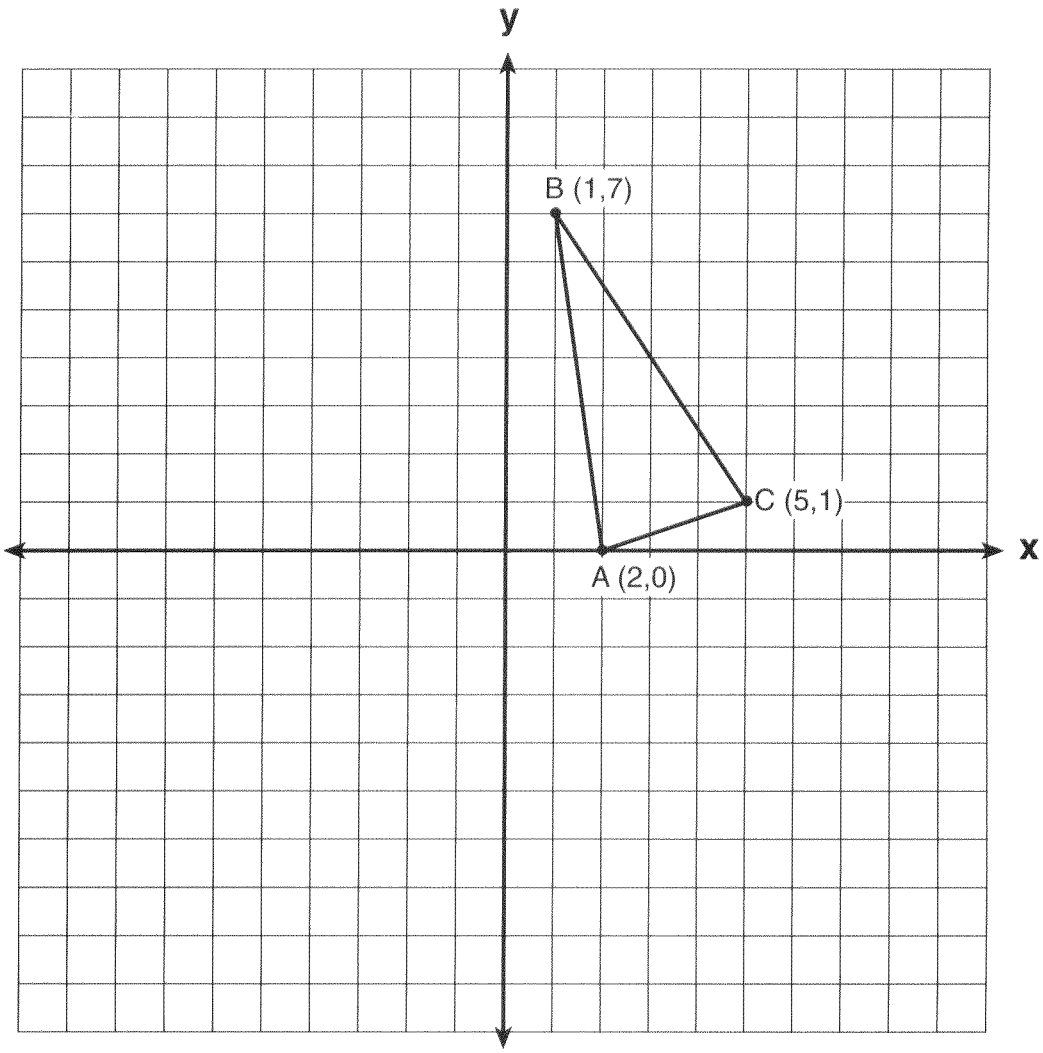
93. The coordinates of the endpoints of $\overline{AB}$ are A (2,6) and B (4,2). Is the image, $\overline{A}''\overline{B}''$, the same if it is formed by first reflecting $\overline{AB}$ in the x-axis, and then dilating half by $\frac{1}{2}$ as if it is dilated by $\frac{1}{2}$, then reflected in the x-axis? Justify your answer. [*The use of the accompanying grid is optional.*]



94. On the accompanying set of axes, graph ΔABC with coordinates $A(-1,2)$, $B(0,6)$, and $C(5,4)$. Then graph $\Delta A'B'C'$, the image of ΔABC after a dilation of 2.

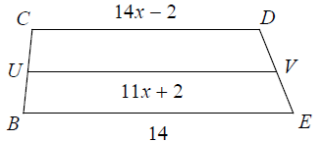


95. Triangle *ABC* has coordinates *A*(2,0), *B*(1,7), and *C*(5,1). On the accompanying set of axes, graph, label, and state the coordinates of $\Delta A'B'C'$, the reflection of ΔABC in the *y*-axis.

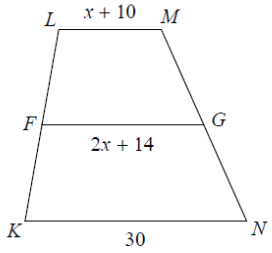


Find the length of the median of each trapezoid.

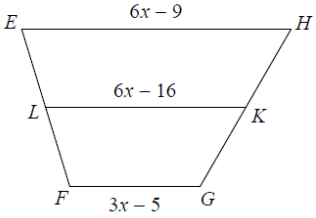
96)



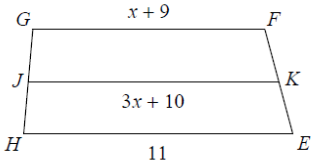
97)



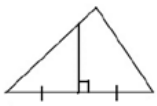
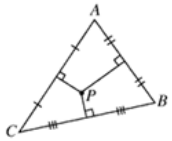
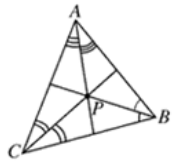
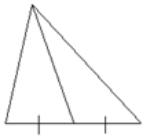
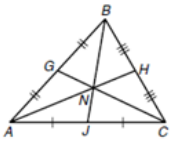
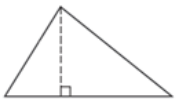
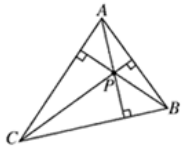
98)



99)



100) Complete the following table:

Name	Example	Point of Concurrency	Property of point	Diagram	Location of point of concurrency
Perpendicular bisector		Circumcenter	The circumcenter is equidistant from the vertices of a Δ		
Angle bisector		Incenter	The incenter is equidistant from each sides of a Δ		
Median		Centroid	The centroid divides the medians into a 2:1 ratio		
Altitude		Orthocenter			

Midterm Review
Answer Key
[New Exam]

1. 4
2. 4
3. 1
4. 2
5. 2
6. 1
7. 2
8. 1
9. 5
10. 14
11. 10
12. 10
13. $\overline{GE}$
14. $\overline{ID}$
15. Essay
16. $\overline{SM}$
17. 1
18. 4
19. 1
20. 1
21. 2
22. 1
23. 2
24. 3
25. 1
26. 3
27. 1
28. 26
29. 1
30. 4
31. 2
32. 2
33. 3
34. 4
35. 2
36. 30
37. 30
38. 50
39. 22
40. 2
41. 3
42. 3
43. 3
44. 4
45. 4
46. 4
47. 2
48. 2
49. 4

Midterm Review
Answer Key
[New Exam]

50. 2

51. 2

52. 4

53. 1

54. 1

55. 4

56. 3

57. 2

58. 2

59. 1

60. 4

61. 2

62. 19

63. 3

64. 25

65. 17

66. 11

67. 12

68. 13

69. 2

70. 5

71. 5

72. 20

73. 1

74. 24.5

75. 2

76. 8

77. 3

78. 1

79. 2

80. III

81. 3

82. 2

83. 3

84. 2

85. 1

86. $y = 2x + 4$

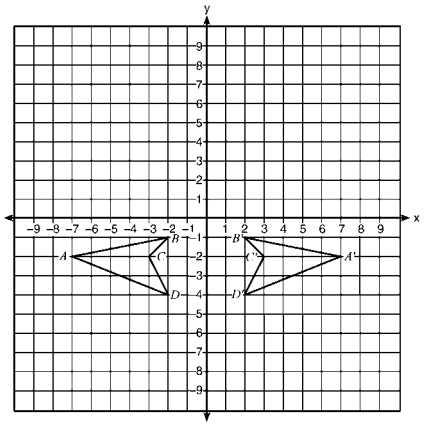
87. 2

88. 4

89. 1

90. 16

91. 3

92. 

Midterm Review
Answer Key
[New Exam]

93. yes

94. graph

95. $A'(-2,0)$, $B'(-1,7)$, and $C'(-5,1)$ are graphed, labeled, and stated correctly.

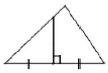
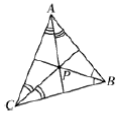
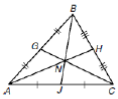
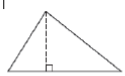
96. 13

97. 22

98. 20

99. 10

100.

Name	Example	Point of Concurrency	Property of point	Diagram	Location of point of concurrency
Perpendicular bisector		Circumcenter	The circumcenter is equidistant from the vertices of a Δ		Acute Δ - inside Δ Obtuse Δ - outside Δ Right Δ - on Δ **(on hypotenuse)**
Angle bisector		Incenter	The incenter is equidistant from each sides of a Δ		INSIDE Δ
Median		Centroid	The centroid is $\frac{2}{3}$ of the distance from each vertex to the midpoint of the opposite side		INSIDE Δ
Altitude		Orthocenter			Acute Δ - inside Δ Obtuse Δ - outside Δ Right Δ - on Δ **(on vertex of Δ)**