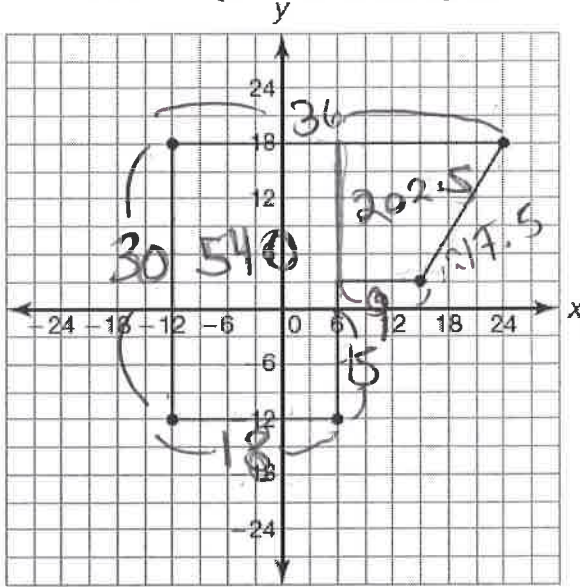


Geometry Midterm Review

1. Find the area and perimeter of this figure:



$$\frac{(B_1 + B_2)(H)}{2} = \frac{(9 + 18)(15)}{2} = 202.5$$

$$+ 270$$

$$A = 540$$

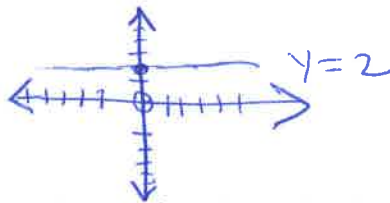
$$P = 120.5 \text{ units}$$

$$(18 + 30 + 36 + 17.5 + 9)$$

Standardized Test Practice

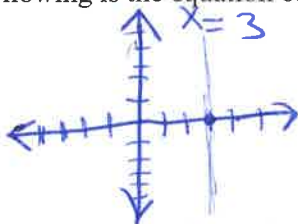
2. Which equation represents a horizontal line passing through the point $(-4, 2)$?

- a. $y = -4$
- b. $x = 2$
- c. $x = -4$
- d. $y = 2$



3. Which of the following is the equation of a vertical line?

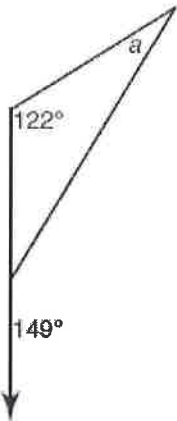
- a. $y = x$
- b. $y = 3$
- c. $x = 3$
- d. $y = -x$



4. A trapezoid and a rhombus are both what type of shape?

- a. square
- b. parallelogram
- c. quadrilateral
- d. kite

- b 5. Solve for a in the figure shown.



exterior Angle Theorem
 $122 + a = 149$
 $149 - 122 = 27$

- a. 31°
 b. 27°
 c. 58°
 d. 29°

- a 6. What is the distance between the two points $(5, -2)$ and $(-3, 8)$?

- a. 12.8
 b. 6.3
 c. 6
 d. 13

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \Rightarrow \sqrt{(-8)^2 + (10)^2} \Rightarrow \sqrt{64 + 100} = \sqrt{164}$$

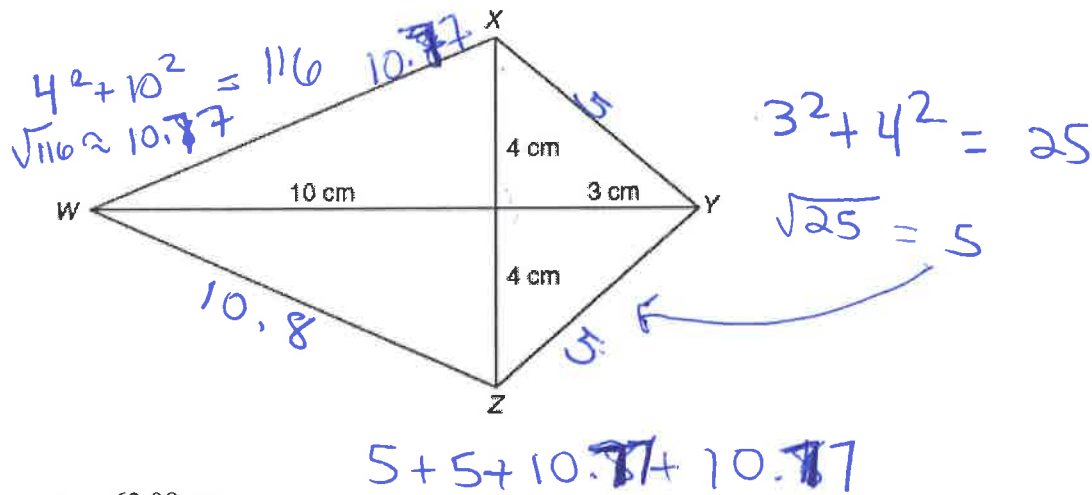
- d 7. Which property is true of all parallelograms?

- a. All sides are congruent.
 b. Opposite sides are perpendicular.
 c. Consecutive sides are parallel.
 d. Opposite sides are parallel.

- d 8. Which of the following is a property of all squares?

- a. Opposite sides are not congruent.
 b. No sides are parallel.
 c. Opposite vertex angles are not congruent.
 d. The diagonals bisect each other.

9. What is the perimeter of the kite shown?



- a. 63.08 cm
- b. 10.00 cm
- c. 31.54 cm
- d. 21.54 cm

10. Triangle ABC is shown with base AC and height BD. What is the approximate height of triangle ABC?

Handwritten calculation for the height of triangle ABC:

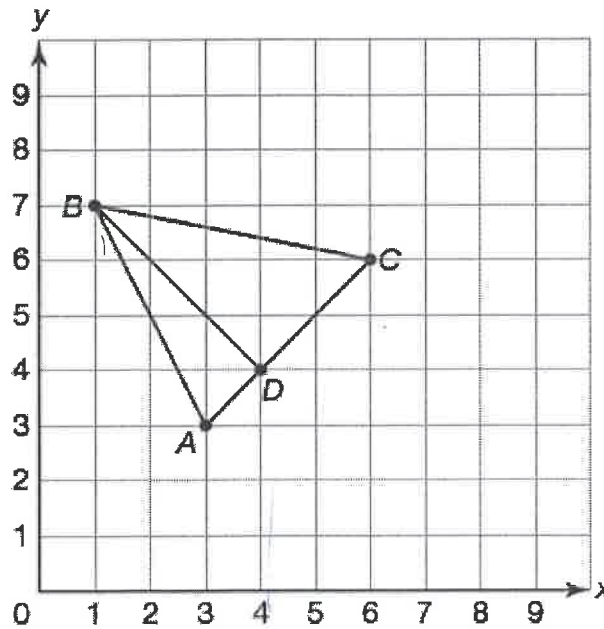
$$B(x_1, y_1) \quad D(x_2, y_2)$$

$$B(1, 7) \quad D(4, 4)$$

$$d = \sqrt{(4-1)^2 + (4-7)^2}$$

$$= \sqrt{3^2 + (-3)^2} = \sqrt{9+9}$$

$$= \sqrt{18} \approx 4.24$$



- a. 3 units
- b. 6.68 units
- c. 4 units
- d. 4.24 units

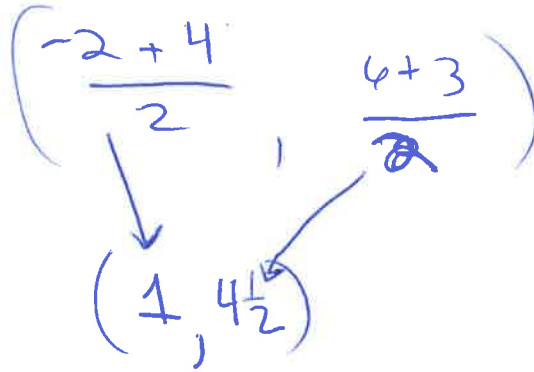
a 11. What is the midpoint of a line segment with endpoints $(-2, 6)$ and $(4, 3)$? x_1, y_1, x_2, y_2

a. $(1, 4\frac{1}{2})$

b. $(-3, 1\frac{1}{2})$

c. $(-4, \frac{1}{2})$

d. $(2, 2\frac{1}{2})$

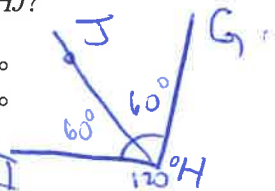


d 12. Which of the following is a property of all rectangles?

- a. The diagonals bisect the vertex angles.
- b. Only one pair of opposite sides is parallel.
- c. The diagonals are perpendicular.
- d. Opposite sides are congruent.

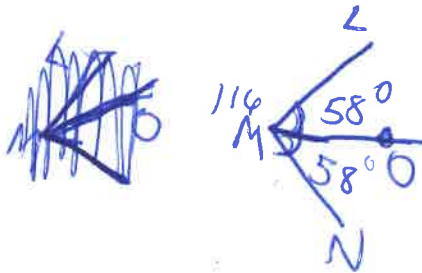
c 13. Lori bisects angle GHI . She labels a point on the bisector as J . Angle GHI is 120° . What is the measure of angle GHI ?

- a. 240°
- b. 120°
- c. 60°
- d. 30°



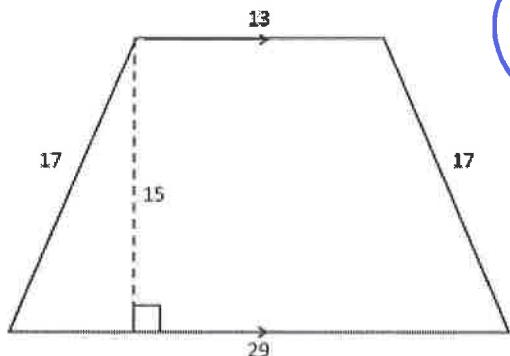
B 14. Joseph bisects angle LMN and labels a point on the bisector as O . He measures angle LMO with a protractor. The measure of angle LMO is 58° . What is the measure of angle LMN ?

- a. 29°
- b. 116°
- c. 27°
- d. 120°



58×2

- B 15. Determine the area of the trapezoid.



$$\frac{(b_1 + b_2)(h)}{2} \quad \text{or} \quad \frac{1}{2}(b_1 + b_2)(h)$$

$$(13 + 29)(15) = \frac{630}{2} = 315$$

- a. 300
 b. 315
 c. 100
 d. 215

- B 16. Which of the following has congruent base angles?

- a. all kites
 b. all isosceles trapezoids
 c. all trapezoids
 d. all quadrilaterals

- C 17. Which of the following are equations of perpendicular lines?

a. $y = -\frac{1}{2}x + 3$

$y = -\frac{1}{2}x - 1$

b. $y = -\frac{1}{2}x + 3$

$y = -2x + 3$

c. $y = -\frac{1}{2}x + 3$

$y = 2x - 3$

d. $y = -\frac{1}{2}x + 3$

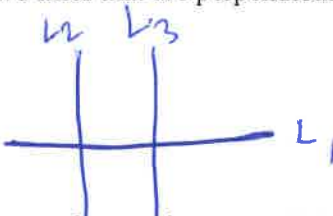
$y = -2x + 1$

B 18. Which of the following is not a parallelogram?

- a. rectangle
- b. kite
- c. square
- d. rhombus

B 19. What is the relationship between two lines that are perpendicular to the same line?

- a. They intersect each other.
- b. They are parallel.
- c. They bisect each other.
- d. They are perpendicular.



C 20. Which of the following is the equation of a line that is parallel to $y = 4x - 3$ and passes through the point $(1, 2)$?

- a. $y = 4x - 1$
- b. $y = -4x + 2$
- c. $y = 4x - 2$
- d. $y = 4x + 1$

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

$$y - 2 = 4(x - 1)$$

$$y - 2 = 4x - 4$$

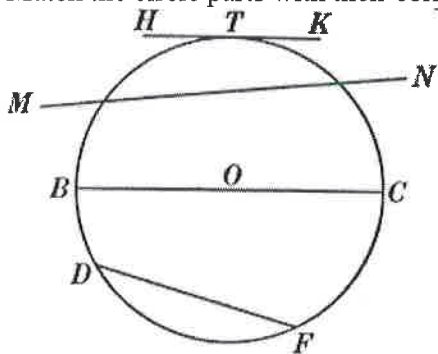
$$\quad + 2 \quad \quad + 2$$

$$y = 4x - 2$$

A 21. Which of the following has four congruent sides?

- a. a rhombus
- b. a trapezoid
- c. a kite
- d. a rectangle

Match the circle parts with their correct names:



- a. \overleftrightarrow{MN} - secant
- b. \overline{BC} - diameter
- c. \overleftrightarrow{HK} - tangent
- d. \overline{OC} - radius
- e. \overline{DF} - chord

d 22. Radius

c 23. Tangent

b 24. Diameter

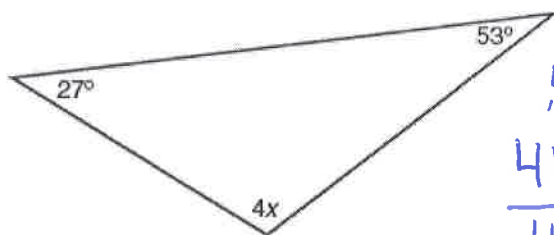
a 25. Secant

e 26. Chord

Mid-Chapter Test

Determine the value of each variable. Show all your work.

27.



$$180 - (27 + 53) = 100$$

$$4x = 100$$

$$\frac{4x}{4} = \frac{100}{4}$$

$$x = 25$$

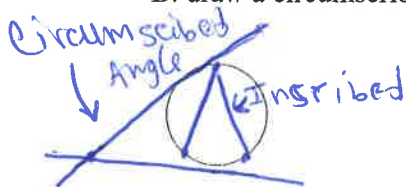
28. In an obtuse triangle, which two points of concurrency are exterior?

Orthocenter + Circumcenter

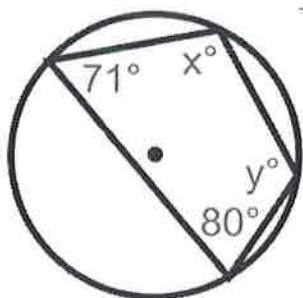
29. For the circle below...

A. draw an inscribed angle :

B. draw a circumscribed angle :



30. Find the measure of X and Y for the cyclic quadrilateral below:



$$71^\circ + Y = 180^\circ \quad 180 - 71 = 109$$

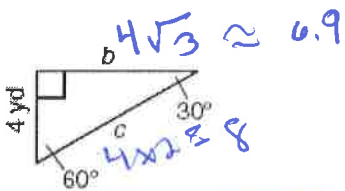
$$80^\circ + X = 180^\circ \rightarrow 180 - 80 = 100$$

X = 100°

Y = 109°

Calculate the unknown side lengths in each triangle. Show all your work and use a complete sentence in your answer. Do not evaluate the radicals.

31.



$b = 4\sqrt{3} \approx 6.9$

$c = 4 \times 2 = 8$

32. Write an equation for a line **parallel** and **perpendicular** to the line $y = -\frac{2}{3}x - 5$ and passes through the point (-4,6)

(-4,6)

parallel:

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

$$y - 6 = -\frac{2}{3}(x + 4)$$

$$y - 6 = -\frac{2}{3}x - \frac{8}{3}$$

$$+6 \qquad +6$$

$$y = -\frac{2}{3}x + \frac{10}{3}$$

perpendicular:

$$y - 6 = \frac{3}{2}(x + 4)$$

$$y - 6 = \frac{3}{2}x + 6 \rightarrow$$

$$y = \frac{3}{2}x + 12$$

End of Chapter Test

33. Determine if the lines are parallel, perpendicular, or neither. Explain your reasoning.

a. $y = -5x + 1$ and $y = \frac{1}{5}x - 1$ Perpendicular; slopes are negative reciprocals

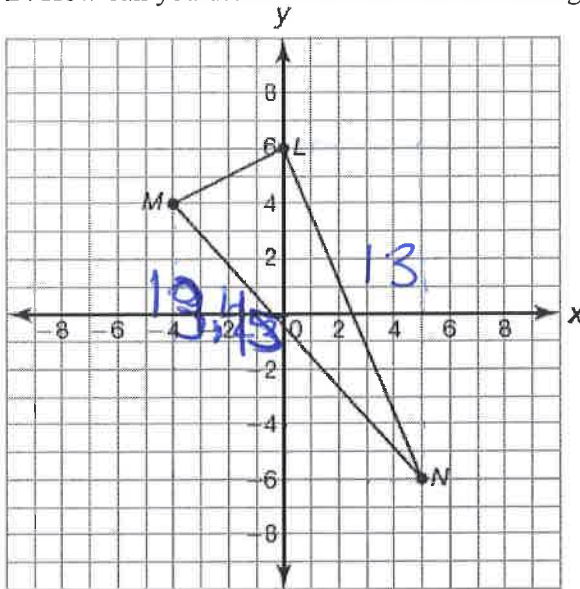
b. $y = 3x + 2$ and $y = -3x + 2$ Neither; slopes are opposites only

c. $y = \frac{9}{2}x - 2$ and $y = 4.5x + 5$ Parallel; $\frac{9}{2} = 4.5$, same slope

34. Where is each point of concurrency located in an acute triangle?

In the interior (inside)

35. A. Determine if the triangle is equilateral, scalene, or isosceles
 B. Determine if the triangle is right, acute, or obtuse
 C. How did you figure out B?
 D. How can you determine the area for this triangle?



A. $M(-4, 4)$ $N(5, -6)$ $L(0, 6)$

$$MN = \sqrt{(5-(-4))^2 + (-6-4)^2}$$

$$= \sqrt{81 + 100} = \sqrt{181} \approx 13.45$$

$$LN = \sqrt{(0-5)^2 + (6-6)^2}$$

$$= \sqrt{25 + 144} = \sqrt{169} = 13$$

Scalene

B. Find Slopes

$$ML = \frac{1}{4} \quad MN = -\frac{10}{9} \quad LN = \frac{12}{5}$$

None are perpendicular (no neg. reciprocals)
 - rule out right triangle
 - rule out obtuse

Acute

C. Using slopes + logic

D. Draw a line from N to the opposite side (base) to determine height, multiply $b \times h$ + divide by 2.