Name _____

Chapter 8 Review

1. Which figure below is NOT a polygon?

[A] [B] [C] [D]
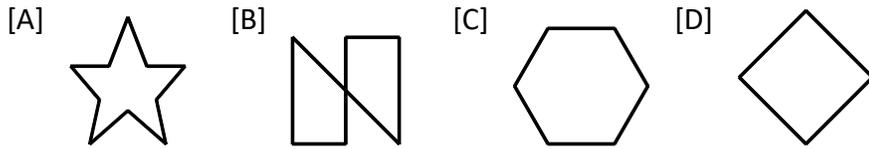
2. Identify the convex polygon.

[A] [B] [C] [D]
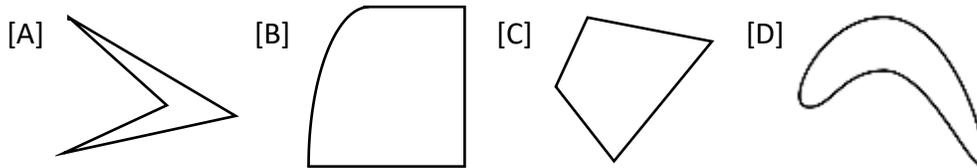
3. Determine if the figure below is a regular polygon. If it is not a regular polygon, explain why.
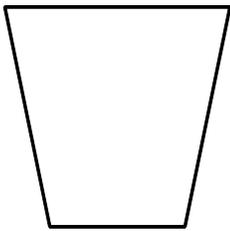
4. Name a polygon with a) 6 sides   b) nine sides   c) 12 sides   d) 20 sides

5. Find the sum of the measures of the interior angles of a decagon.

6. Find the sum of the measures of the interior angles in the figure.
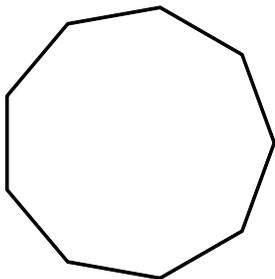
7. A regular pentagon has five congruent interior angles. What is the measure of each angle?

8. Find the number of sides of a convex polygon if the measures of its interior angles have a sum of 1080°.

9. Determine the number of sides of a regular polygon if each interior angle measure is $135°$.

10. Find the measure of an interior angle and an exterior angle of a regular polygon with 9 sides.

11. What is the measure of each exterior angle in a regular pentagon?

12. Find the value of x.

$102°$

$62°$ $71°$ x

13. Find x and y.

$120°$

$x°$

$104°$ $y°$ $65°$
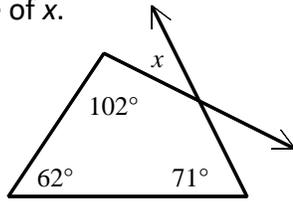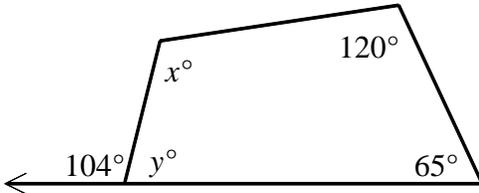
14. Find AM in the parallelogram if $PN = 7$ and $AO = 4$.

M N A P O
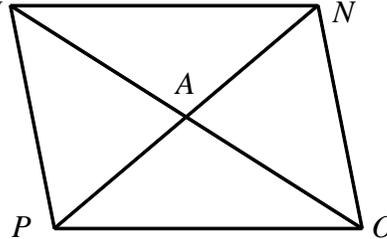
15. Use the figure below.

F G K 19 $68°$ J 34 H
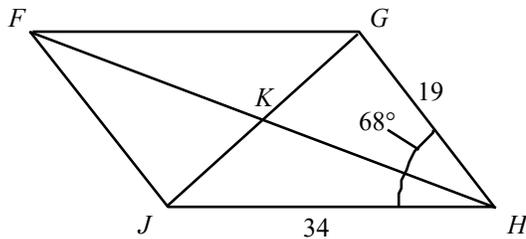
Given: FGHJ is a parallelogram, $m\angle JHG = 68°, JH = 34, GH = 19$
A. Find $m\angle FJH$.
B. Find JF.
C. Find $m\angle GFJ$.
D. Find FG.

16. Consecutive angles in a parallelogram are always _____.

[A] vertical angles   [B] complementary angles

[C] supplementary angles   [D] congruent angles

17. Find the value of the variables in the parallelogram.

[figure: parallelogram with diagonal, angles $34°$, $110°$, and variables y, z, x]
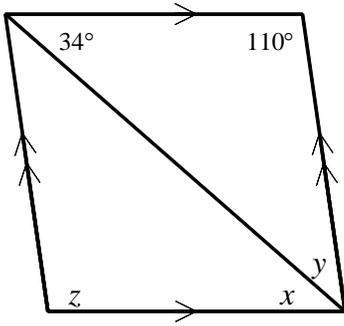
[A] $x = 55°$, $y = 17°$, $z = 146°$ [B] $x = 36°$, $y = 34°$, $z = 110°$
[C] $x = 17°$, $y = 55°$, $z = 146°$ [D] $x = 34°$, $y = 36°$, $z = 110°$

18. If $ON = 9x - 3$, $LM = 5x + 7$, $NM = x + 3$, and $OL = 6y + 4$, find the values of x and y given that $LMNO$ is a parallelogram.

[figure: parallelogram with vertices O, N (top) and L, M (bottom)]

[A] $x = 1$; $y = 4$ [B] $x = \dfrac{5}{2}$; $y = 4$ [C] $x = \dfrac{5}{2}$; $y = \dfrac{1}{4}$ [D] $x = 1$; $y = \dfrac{1}{8}$

19. Use the Distance Formula and/or slope to determine what shape $ABCD$ is. Explain

[figure: coordinate grid with points $A(-3, 2)$, $B(3, 3)$, $C(5, -3)$, $D(-1, -5)$]
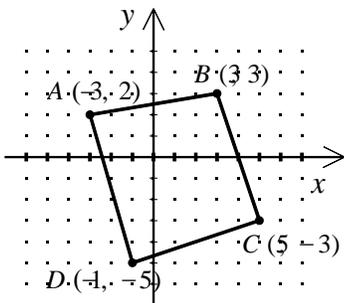
Sides	Slope	Distance

20. Which statement is true?

[A] All quadrilaterals are squares. [B] All rectangles are quadrilaterals.

[C] All rectangles are squares.   [D] All quadrilaterals are rectangles.

21. The coordinates of quadrilateral *PQRS* are P(–3, 0), Q(0, 4), R(4, 1), and S(1, –3). What name best describes the quadrilateral? Explain

Sides	Slope	Distance

22. Isosceles trapezoid *ABCD* has legs $\overline{AB}$ and $\overline{CD}$, and base $\overline{BC}$. If $AB = 7y - 9$, $BC = 5y + 3$, and $CD = 2y + 2$. Find the value of y.
Draw a picture to help.

23. Given: Trapezoid *ABCD* with midsegment $\overline{EF}$. If $EF = 11$ and $DC = 14$, find the length of $\overline{AB}$.
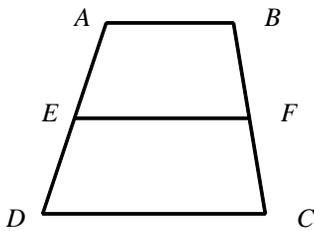
24. Use slope and/or the Distance Formula to determine the most precise name for the figure:
   A(–4, –4), B(0, –2), C(5, 4), D(1, 2). Explain

Sides	Slope	Distance

25. Choose the figure below which satisfies the definition of a kite.

[A]   [B]   [C]   [D]
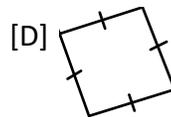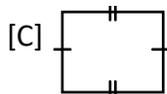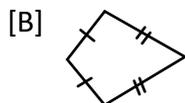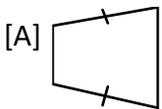
Solve for x.

26. $3x^2 - 7x - 13 = 2x^2 - 5$

27. $x^2 + 4x + 8x - 23 = 9x - 2x + 1$

28. $x^2 - 10x + 25 = 0$

29. $2(x^2 + 2x - 9) = x^2 + 3$

30. $\begin{cases} 3x - 6y = 5x + 10 \\ x + 4y = 120 \end{cases}$

31. $\begin{cases} x + 5y = 180 \\ 3x + 6y = 180 \end{cases}$

32. $\begin{cases} 2x + 8y = 90 \\ 8x + 3y = 5x + -1y \end{cases}$

Answer Key

1. [B]
2. [C]
3. No- not all sides and angles congruent
4. a) hexagon b) nonagon
   c) dodecagon   d) 20-gon
5. 1440°
6. 1260°
7. 108°
8. 8
9. 8
10. 140; 40
11. 72°
12. X=55
13. X=99, Y=76
14. AM=4
15. A. 112   B. 19
    C. 68   D. 34
16. [C]
17. [D]
18. [C]
19.

Sides	Slope	Distance
AB	1/6	$\sqrt{37}$
BC	-3	$\sqrt{40}$
CD	1/3	$\sqrt{40}$
AD	-7/2	$\sqrt{53}$

This shape is a quad. There are no pairs of parallel sides and there are not 2 pair of consecutive sides congruent.

20. [B]
21.

Sides	Slope	Distance
PQ	4/3	5
QR	-3/4	5
RS	4/3	5
PS	-3/4	5

This quad is a square. There are 2 pairs of parallel sides – slopes are congruent. The slopes are opposite reciprocals so all 4 angles are right. The four sides are congruent because the distances are the same.

22. Y= 2.2
23. AB = 8

24.

Sides	Slope	Distance
AB	½	$\sqrt{20}$
BC	6/5	$\sqrt{61}$
CD	½	$\sqrt{20}$
AD	6/5	$\sqrt{61}$

This is a parallelogram. There are 2 pair of parallel side because the slopes are the same. There are no right angles because the slopes are not opposite reciprocals. There are 2 pair of congruent sides, but not all four sides.

25. [B]
26. X= 8, -1
27. X = -8 ,3
28. X = 5
29. X= -7,3
30. X = -380, Y= 125
31. X = -20, Y=40
32. X = -22.5, Y= 16.875