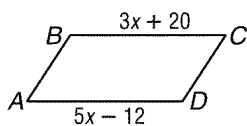


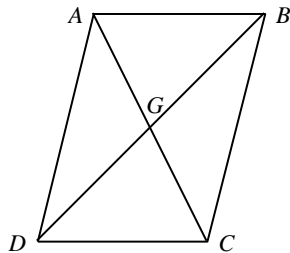
- _____ 1. Find the sum of interior angles for a decagon.
a. 1800 c. 360
b. 1440 d. none of these
- _____ 2. Find the sum of the measures of the exterior angles of a convex 21-gon.
a. 21 c. 360
b. 180 d. 3420
- _____ 3. Find the measure of each exterior angle for a regular hexagon. Round to the nearest tenth if necessary.
a. 720 c. 120
b. 360 d. 60
- _____ 4. If the measure of each interior angle of a regular polygon is 108, find the measure of each exterior angle.
a. 18 c. 90
b. 72 d. 108
- _____ 5. If all sides of a quadrilateral are 12 cm, classify all that apply.
I. Parallelogram
II. Rhombus
III. Rectangle
IV. Square
a. I only e. I & II
b. II only f. II & IV
c. III only g. I, II & IV
d. IV only h. ALL four
- _____ 6. If all angles of a quadrilateral are 90 degrees and all sides are 17m, classify all that apply.
I. Parallelogram
II. Rhombus
III. Rectangle
IV. Square
a. I only e. I & II
b. II only f. II & IV
c. III only g. I, II & IV
d. IV only h. ALL four
- _____ 7. Which of the following is a property of a parallelogram?
a. The diagonals are congruent. c. The diagonals are perpendicular.
b. The diagonals bisect the angles. d. The diagonals bisect each other.
- _____ 8. Which of the following is a property of rectangles, but not all parallelograms?
a. The diagonals are congruent. c. The diagonals are perpendicular.
b. The diagonals bisect the angles. d. The diagonals bisect each other.
- _____ 9. Which of the following is a property of squares, but not all rectangles?
a. The diagonals are congruent. c. The diagonals are perpendicular.
b. Opposite sides are congruent. d. The diagonals bisect each other.

- ____ 10. Which of the following is a property of squares, but not all rhombi?
- The diagonals are congruent.
 - The diagonals bisect the angles.
 - The diagonals are perpendicular.
 - The diagonals bisect each other.
- ____ 11. Which of the following is a property of all parallelograms?
- Each pair of opposite sides is parallel
 - Only one pair of opposite angles is congruent.
 - Each pair of opposite angles is supplementary.
 - There are four right angles.
- ____ 12. Which of the following is NOT a property of a parallelogram?
- Each pair of opposite sides is congruent.
 - Each pair of opposite angles is congruent.
 - Consecutive interior angles are supplementary
 - Diagonals are perpendicular.
- ____ 13. For parallelogram $ABCD$, find x .



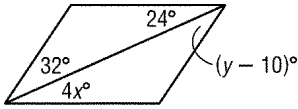
- 4
- 10.25
- 16
- 21.5

Complete the statement about parallelogram $ABCD$.



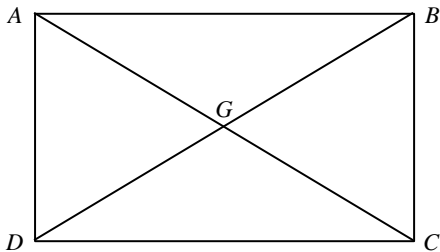
- ____ 14. $\angle ABC \cong$
- $\angle ADC$; Alternate interior angles are congruent.
 - $\angle BCD$; Alternate interior angles are congruent.
 - $\angle BCD$; Opposite angles of parallelograms are congruent.
 - $\angle ADC$; Opposite angles of parallelograms are congruent.

- ____ 15. Find x and y so that $ABCD$ will be a parallelogram.

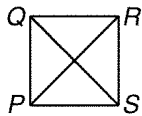


- | | |
|--------------------|---------------------|
| a. $x = 6, y = 42$ | c. $x = 20, y = 42$ |
| b. $x = 6, y = 22$ | d. $x = 20, y = 22$ |

Quadrilateral ABCD is a rectangle.

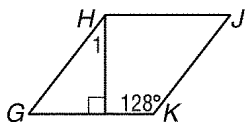


- ____ 16. If $AG = -3r + 55$ and $DG = -4r + 63$, find BD .
- | | |
|-------|---------|
| a. 31 | c. 62 |
| b. 8 | d. 15.5 |
- ____ 17. If $\angle ADB = h + 15$ and $\angle CDB = -6h + 45$, find $\angle CBD$.
- | | |
|-------|-------|
| a. 9 | c. 45 |
| b. 81 | d. -6 |
- ____ 18. $ABCD$ is a rectangle with $B(-5, 0)$, $C(7, 0)$ and $D(7, 3)$. Find the coordinates of A .
- | | |
|--------------|--------------|
| a. $(-5, 7)$ | c. $(-5, 3)$ |
| b. $(3, 5)$ | d. $(7, -3)$ |
- ____ 19. The diagonals of square $ABCD$ intersect at E . If $AE = 3x - 4$ and $BD = 10x - 48$, find AC .
- | | |
|-------|-------|
| a. 90 | c. 26 |
| b. 52 | d. 10 |
- ____ 20. Find $m\angle PRS$ in square $PQRS$.



- | | |
|-------|-------|
| a. 30 | c. 60 |
| b. 45 | d. 90 |

- ____ 21. For rhombus $GHJK$, find $m\angle 1$.



- | | |
|-------|-------|
| a. 90 | c. 52 |
| b. 64 | d. 38 |

- ____ 22. If the slope of \overline{PQ} is $2/3$ and the slope of \overline{RS} is $2/3$, find the slope of \overline{QR} and \overline{SP} so that PQRS is a square.
- | | |
|-----------|-----------|
| a. $-3/2$ | c. $-2/3$ |
| b. $3/2$ | d. $2/3$ |

Short Answer

Show all work to receive full credit.

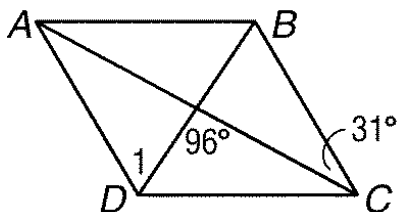
23. The measure of one interior angle of a regular polygon is 172. Find the number of sides of the polygon.

n = _____

24. A convex hexagon has interior angles with measures x° , $(5x - 103)^\circ$, $(2x + 60)^\circ$, $(7x - 31)^\circ$, $(6x - 6)^\circ$, and $(9x - 100)^\circ$. Find x .

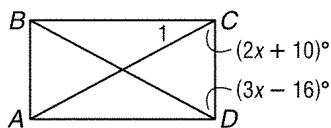
x = _____

25. For parallelogram $ABCD$, find $m\angle 1$.



$m\angle 1 =$ _____

26. In rectangle $ABCD$, find $m\angle 1$.

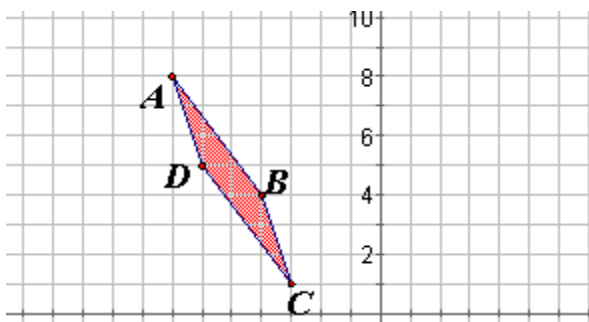


$$x = \underline{\hspace{2cm}}$$

$$m\angle ACD = \underline{\hspace{2cm}}$$

$$m\angle 1 = \underline{\hspace{2cm}}$$

27. Determine if the figure is a **parallelogram** $A(-7, 8)$, $B(-4, 4)$, $C(-3, 1)$, $D(-6, 5)$. Explain your work!



28. Determine whether $ABCD$ is a parallelogram, rectangle, rhombus, and/or a square given the set of vertices. Explain your work! Classify all that apply! (picture not drawn to scale)

$A(-1, -5)$ $B(-3, 0)$ $C(2, 2)$ $D(4, -3)$.

For each that applies you must write the words "It is a (type of quad) because _____"

$$\text{Slope } AB = -\frac{5}{2}$$

$$\text{Slope } BC = \frac{2}{5}$$

$$\text{Slope } CD = -\frac{5}{2}$$

$$\text{Slope } AD = \frac{2}{5}$$

$$AB = \sqrt{29}$$

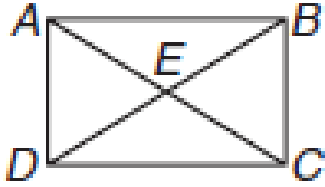
$$BC = \sqrt{29}$$

$$CD = \sqrt{29}$$

$$AD = \sqrt{29}$$

29. Use rectangle ABCD below. (Show geometry and justifications)

If $m\angle BAC = x^2 + 3$ and $m\angle CAD = x + 15$, find the possible measure(s) of $\angle BAC$ and $\angle CAD$.



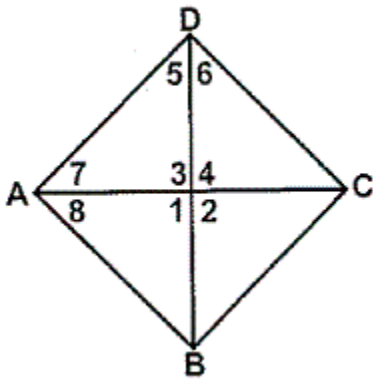
$$x = \underline{\hspace{2cm}} \text{ OR } \underline{\hspace{2cm}}$$

$$\angle BAC = \underline{\hspace{2cm}} \text{ OR } \underline{\hspace{2cm}}$$

$$\angle CAD = \underline{\hspace{2cm}} \text{ OR } \underline{\hspace{2cm}}$$

- 30.

For **rhombus** ABCD, $m\angle 8 = 35$, find the $m\angle 1$, $m\angle 2$, $m\angle 3$, $m\angle 4$, $m\angle 5$, $m\angle 6$, and $m\angle 7$.



$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}} \quad m\angle 3 = \underline{\hspace{2cm}}$$

$$m\angle 4 = \underline{\hspace{2cm}}$$

$$m\angle 5 = \underline{\hspace{2cm}}$$

$$m\angle 6 = \underline{\hspace{2cm}} \quad m\angle 7 = \underline{\hspace{2cm}}$$

Bonus Question

31. Write a two-column proof.

Given: $ABCD$ is a rectangle. E is the midpoint of \overline{AB} .

Prove: $\overline{DE} \cong \overline{CE}$

