

Name: _____

Date: _____

UNIT 4

REVIEW

UNIT 4 REVIEW: QUADRILATERALS

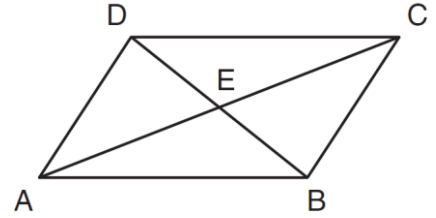
<p>1. What is the difference between the sum of the measures of the interior angles of a regular hexagon and the sum of the measures of the exterior angles of a regular hexagon?</p> <p>1) 36 2) 72 3) 360 4) 180</p>	<p>2. The measure of an interior angle of a regular polygon is 120°. How many sides does the polygon have?</p> <p>1) 5 2) 6 3) 3 4) 4</p>
<p>3. A parallelogram must be a rectangle if its diagonals</p> <p>1) bisect each other. 2) bisect the angles to which they are drawn. 3) are perpendicular to each other. 4) are congruent.</p>	<p>4. Which statements describe the properties of a trapezoid?</p> <p>1) The bases are parallel. 2) The diagonals are congruent. 3) The opposite angles are congruent. 4) The base angles are congruent.</p>
<p>5. Which of the following reasons is valid for proving a quadrilateral is a parallelogram?</p> <p>1) Diagonals bisect angles 2) All sides are congruent 3) One pair of opposite sides are parallel 4) One pair of opposite sides are both parallel and congruent</p>	<p>6. Which of the following reasons is NOT valid for proving a parallelogram is a rhombus?</p> <p>(1) Diagonals bisect angles (2) All sides are congruent (3) Diagonals are congruent (4) Diagonals are perpendicular</p>
<p>7. Which statement is <i>false</i>?</p> <p>1) All parallelograms are quadrilaterals. 2) All rectangles are parallelograms. 3) All squares are rhombuses. 4) All rectangles are squares.</p>	<p>8. The diagonals of a quadrilateral are congruent but do not bisect each other. This quadrilateral is</p> <p>1) an isosceles trapezoid 2) a parallelogram 3) a rectangle 4) a rhombus</p>
<p>9. Which of the following reasons is valid for proving a parallelogram is a rectangle?</p> <p>(1) Diagonals bisect angles (2) Both pairs of opposite sides are congruent (3) Diagonals are congruent (4) Diagonals are perpendicular</p>	<p>10. Which of the following reasons is valid for proving a quadrilateral is a trapezoid?</p> <p>1) Diagonals bisect angles 2) Both pairs of opposite sides are congruent 3) Both pairs of opposite sides are parallel 4) At least one pair of opposite sides are parallel</p>

11. In parallelogram $ABCD$, diagonals \overline{AC} and \overline{DB} intersect at E . Which is always true?

- (1) $\triangle AED$ is isosceles
- (2) $\triangle ABD$ is a right triangle
- (3) $\overline{DB} \cong \overline{AC}$
- (4) $\triangle ABC \cong \triangle CDA$

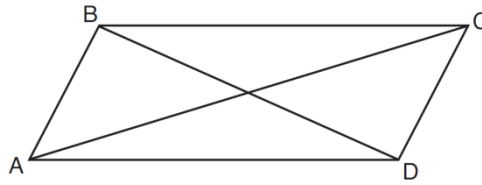
12. In the diagram below, parallelogram $ABCD$ has diagonals \overline{AC} and \overline{BD} that intersect at point E . Which expression is *not* always true?

- 1) $\angle DAE \cong \angle BCE$
- 2) $\angle DEC \cong \angle BEA$
- 3) $\overline{AC} \cong \overline{DB}$
- 4) $\overline{DE} \cong \overline{EB}$

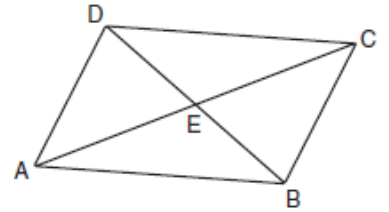


13. Quadrilateral $ABCD$ with diagonals \overline{AC} and \overline{BD} is shown in the diagram below. Which information is *not* enough to prove $ABCD$ is a parallelogram?

- 1) $\overline{AB} \cong \overline{CD}$ and $\overline{AB} \parallel \overline{DC}$
- 2) $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{DA}$
- 3) $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \parallel \overline{AD}$
- 4) $\overline{AB} \parallel \overline{DC}$ and $\overline{BC} \parallel \overline{AD}$

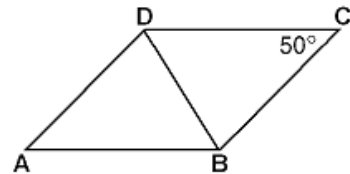


14. In the accompanying diagram of parallelogram $ABCD$, diagonals \overline{AC} and \overline{DB} intersect at E , $AE = 3x - 4$, and $EC = x + 12$. What is the value of AC ?

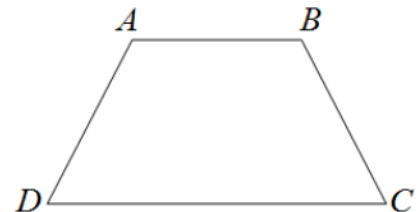


15. In Rectangle $ABCD$, the lengths of diagonal AC and BD are represented by $2x + 3$ and $4x - 11$. Determine the value of x .

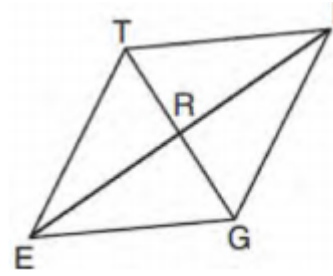
16. In the accompanying diagram of rhombus $ABCD$, diagonal \overline{BD} is drawn and $\angle C = 50^\circ$. Determine $m\angle ADB$.



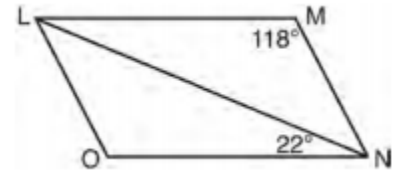
17. In isosceles trapezoid $ABCD$, $\overline{AD} \cong \overline{BC}$. If $DC = 36$, $AB = 20$, and $AD = 17$ what is the length of the altitude of the isosceles trapezoid?



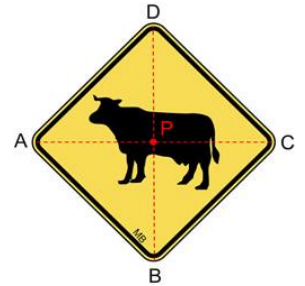
18. In rhombus TIGE, diagonals TG and IE intersect at R. The perimeter of TIGE is 52, and $TG = 10$. What is the length of diagonal IE?



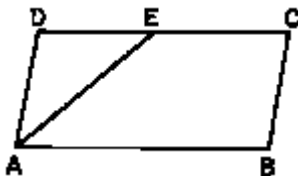
19. The diagram below shows parallelogram LMNO with diagonal LN, $m\angle M = 118^\circ$, and $m\angle LNO = 22^\circ$. Find $m\angle NLO$ and **explain** how you found your answer.



20. A cow crossing sign, in the shape of a square, is to be mounted to a post by placing a bolt through the center, P, of the sign. If $AC = 10$ inches, what is the exact distance from A to B, in simplest radical form?

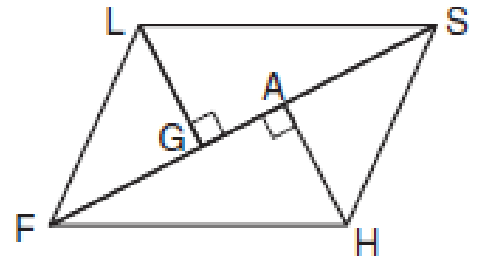


21. In the diagram below, Parallelogram ABCD has $m\angle B = 120$ and $\angle DAE = 40$. What is the measure of $\angle BAE$? Explain.



22. Given: Parallelogram $FLSH$, diagonal \overline{FGAS} , $\overline{LG} \perp \overline{FS}$, $\overline{HA} \perp \overline{FS}$.

Prove: $\triangle LGS \cong \triangle HAF$

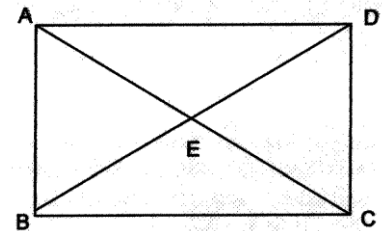


STATEMENT	REASON
1. Parallelogram $FLSH$, diagonal \overline{FGAS} , $\overline{LG} \perp \overline{FS}$, $\overline{HA} \perp \overline{FS}$.	1.
2. $\angle LGS \cong \angle HAF$	2.
3. $\overline{LS} \cong \overline{FH}$	3.
4. $\angle LSF \cong \angle HFS$	4.
5. $\triangle LGS \cong \triangle HAF$	5.

23. Given: E is the midpoint of \overline{AC}

$$\overline{BE} \cong \overline{ED}$$

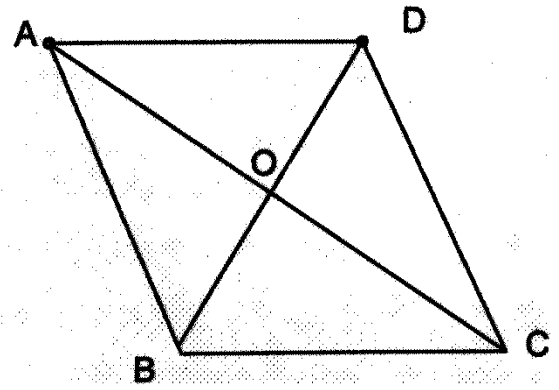
$$\overline{AB} \perp \overline{BC}$$



Prove: ABCD is a rectangle.

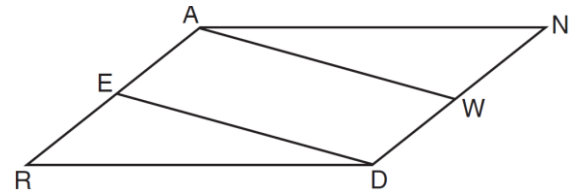
STATEMENT	REASON
1. E is the midpoint of \overline{AC} ; $\overline{BE} \cong \overline{ED}$; $\overline{AB} \perp \overline{BC}$	1.
2. $\overline{AE} \cong \overline{EC}$	2.
3. Quadrilateral ABCD is a parallelogram	3.
4. $\angle ABC$ is a right angle	4.
5. Quadrilateral ABCD is a rectangle	5.

24. Given: \overline{AO} is the median to \overline{BD}
 O is the midpoint of \overline{AC}
 $\overline{AC} \perp \overline{BD}$
 Prove: $ABCD$ is a rhombus



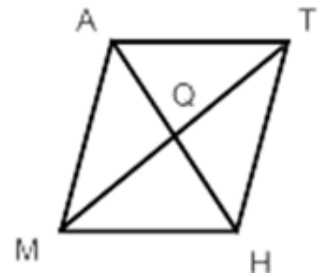
STATEMENT	REASON
1. \overline{AO} is the median to \overline{BD} ; O is the midpoint of \overline{AC} ; $\overline{AC} \perp \overline{BD}$	1.
2. $\overline{BO} \cong \overline{OD}$	2.
3. $\overline{AO} \cong \overline{OC}$	3.
4. Quadrilateral $ABCD$ is a parallelogram	4.
5. Quadrilateral $ABCD$ is a rhombus	5.

25. Given: Parallelogram $ANDR$; $\overline{ER} \cong \overline{NW}$
 Prove: $\triangle ANW \cong \triangle DRE$.



STATEMENT	REASON

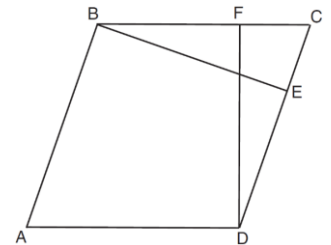
26. *Given:* AH bisects MT at Q and $\sphericalangle TMA \cong \sphericalangle MTH$
Prove: MATH is a parallelogram



STATEMENT

REASON

27. *Given:* Parallelogram ABCD, $\overline{BE} \perp \overline{CED}$, $\overline{DF} \perp \overline{BFC}$, $\overline{BE} \cong \overline{FD}$.
 Prove ABCD is a rhombus.
***HINT: Prove that $\triangle BCE \cong \triangle DCF$ first in order to get consecutive sides congruent.
 Look for a reflexive angle!***



STATEMENT

REASON