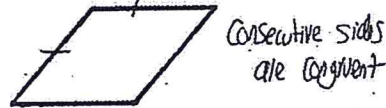
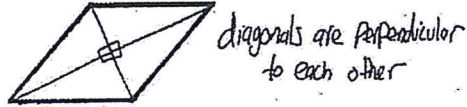
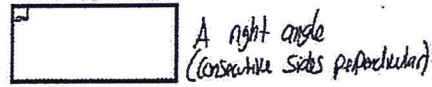
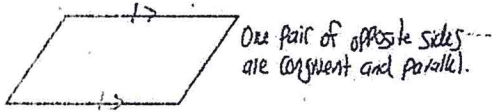
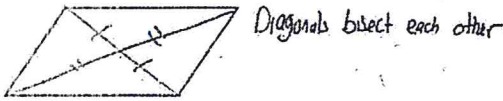
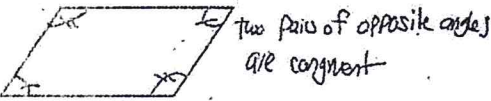
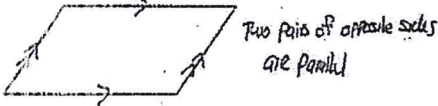
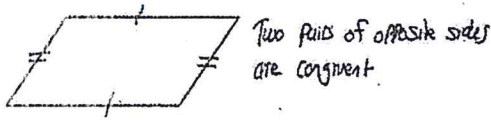


## Parallelogram Properties



A rectangle and rhombus have all of the properties of the parallelogram.

A square has all of the properties of the parallelogram, rectangle, and rhombus.

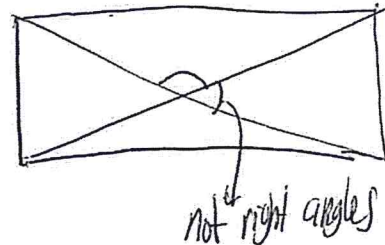
A trapezoid has one pair of opposite sides parallel and one pair of opposite sides not parallel.

An isosceles trapezoid is a trapezoid that has congruent legs and congruent diagonals.

For properties questions, draw the shape!

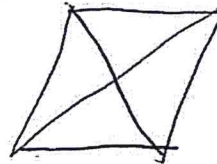
1. Which of the following is not true of all rectangles?

- 1) Consecutive sides are perpendicular
- 2) Opposite sides are parallel
- ~~3) Diagonals are perpendicular to each other~~
- 4) Diagonals bisect each other



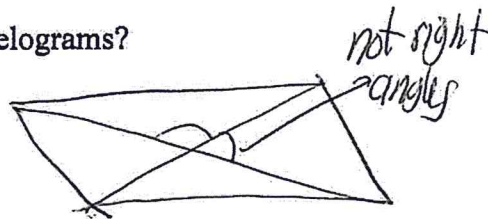
2. Which of the following is true about rhombuses?

- 1) Consecutive sides are perpendicular
- 2) Opposite sides are congruent
- ~~3) Consecutive angles are congruent~~
- 4) Diagonals are congruent



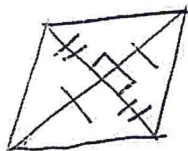
3. Which of the following is *not* true about all parallelograms?

- 1) Diagonals bisect each other
- ~~2) Diagonals are perpendicular to each other~~
- 3) Opposite angles are congruent
- 4) Consecutive angles are supplementary



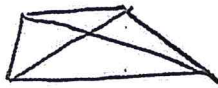
4. A quadrilateral whose diagonals bisect each other and are perpendicular is a

- ~~1) rhombus~~
- 2) rectangle
- 3) trapezoid
- 4) parallelogram



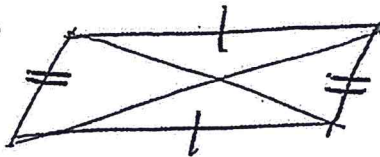
5. If the diagonals of a quadrilateral do not bisect each other, then the quadrilateral could be a

- 1) rectangle
- 2) rhombus
- 3) square
- 4)  trapezoid



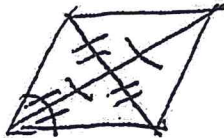
6. Which statement is true about every parallelogram?

- 1) All four sides are congruent.
- 2) The interior angles are all congruent.
- 3)  Two pairs of opposite sides are congruent.
- 4) The diagonals are perpendicular to each other.



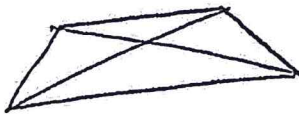
7. Which quadrilateral has diagonals that always bisect its angles and also bisect each other?

- 1)  rhombus
- 2) rectangle
- 3) parallelogram
- 4) isosceles trapezoid



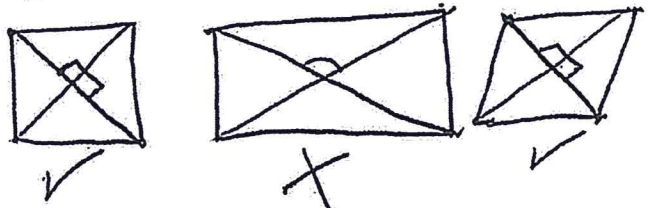
8. The diagonals of a quadrilateral are congruent but do not bisect each other. This quadrilateral is

- 1)  an isosceles trapezoid
- 2) a parallelogram
- 3) a rectangle
- 4) a rhombus



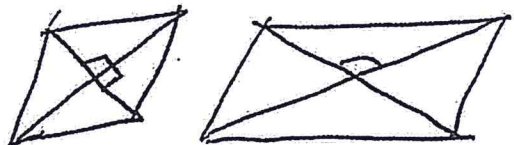
9. Given three distinct quadrilaterals, a square, a rectangle, and a rhombus, which quadrilaterals must have perpendicular diagonals?

- 1) the rhombus, only
- 2) the rectangle and the square
- 3)  the rhombus and the square
- 4) the rectangle, the rhombus, and the square



10. A parallelogram must be a rhombus when its which property proves a rhombus?

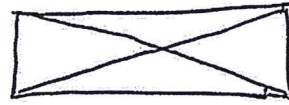
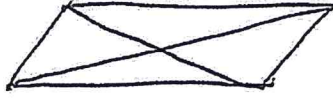
- 1) Diagonals are congruent.
- 2) Opposite sides are parallel.
- 3)  Diagonals are perpendicular.
- 4) Opposite angles are congruent.



Which property proves a rectangle

11. A parallelogram must be a rectangle when its

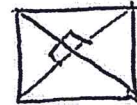
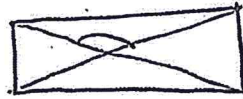
- 1) diagonals are perpendicular
- ~~2) diagonals are congruent~~
- 3) opposite sides are parallel
- 4) opposite sides are congruent



Which property proves a square

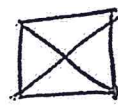
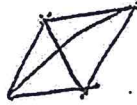
12. A rectangle must be a square when its

- 1) consecutive sides are perpendicular
- 2) diagonals are congruent
- ~~3) diagonals are perpendicular to each other~~
- 4) opposite sides are parallel



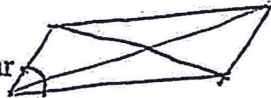
13. A rhombus must be a square when its

- 1) consecutive sides are congruent
- ~~2) diagonals are congruent~~
- 3) opposite angles are congruent
- 4) diagonals are perpendicular to each other



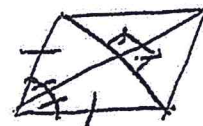
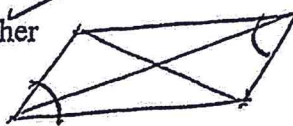
14. A parallelogram must be a rectangle when its

- 1) consecutive sides are congruent
- 2) opposite angles are congruent
- ~~3) consecutive sides are perpendicular~~
- 4) opposite sides are parallel



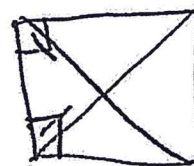
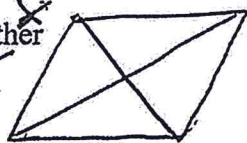
15. Which of the following properties does not make a parallelogram a rhombus?

- 1) diagonals bisect the angles ✓
- 2) diagonals are perpendicular to each other ✓
- ~~3) opposite angles are congruent~~ ✗
- 4) consecutive sides are congruent ✓



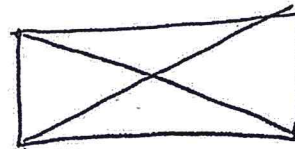
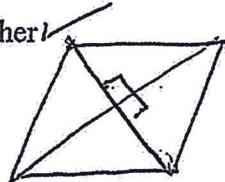
16. Which of the following properties does not make a rhombus a square?

- 1) Diagonals are congruent ✓
- ~~2) Diagonals are perpendicular to each other~~ ✗
- 3) Consecutive sides are perpendicular ✓
- 4) Consecutive angles are congruent ✓



17. Which property is true of all rhombuses but not of all rectangles?


- 1) opposite sides are parallel ✗
- ~~2) diagonals are perpendicular to each other~~ ✓
- 3) diagonals bisect each other ✗
- 4) opposite angles are congruent ✗

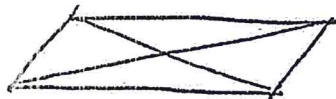


18. Which set of statements would describe a parallelogram that can always be classified as a rhombus?

- I. Diagonals are perpendicular bisectors of each other. ✓
- II. Diagonals bisect the angles from which they are drawn. ✓
- III. Diagonals form four congruent isosceles right triangles. ✓

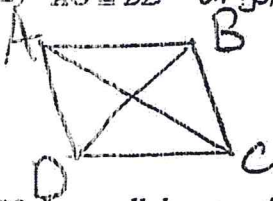
- 1) I and II
- 2) I and III
- 3) II and III
- 4) I, II, and III

 must be a square  
all ~~rhombuses~~ squares  
are rhombuses



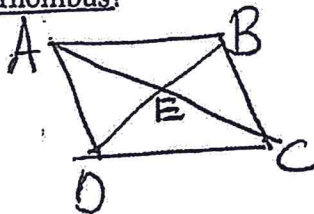
19. If  $ABCD$  is a parallelogram, which statement would prove that  $ABCD$  is a rhombus?

- 1)  $\angle ABC \cong \angle CDA$  opposite angles  $\cong$
- 2)  $\overline{AC} \cong \overline{BD}$  diagonals  $\cong$
- 3)  $\overline{AC} \perp \overline{BD}$  diagonals perpendicular to each other
- 4)  $\overline{AB} \perp \overline{CD}$  opposite sides  $\perp$



20. In parallelogram  $ABCD$ , diagonals  $\overline{AC}$  and  $\overline{BD}$  intersect at  $E$ . Which statement does not prove parallelogram  $ABCD$  is a rhombus?

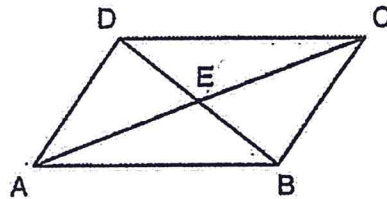
- 1)  $\overline{AC} \cong \overline{DB}$  diagonals  $\cong$
- 2)  $\overline{AE} \cong \overline{BE}$  consecutive sides  $\cong$
- 3)  $\overline{AC} \perp \overline{DB}$  diagonals  $\perp$
- 4)  $\overline{AC}$  bisects  $\angle DCB$  diagonals bisect the angles



21. 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)  $\angle DAE \cong \angle BCE$  alternate interior angles
- 2)  $\angle DEC \cong \angle BEA$  vertical angles
- 3)  $\overline{AC} \cong \overline{DB}$  diagonals  $\cong$
- 4)  $\overline{DE} \cong \overline{EB}$  diagonals bisect each other



22. In the diagram below, isosceles trapezoid  $ABCD$  has diagonals  $\overline{AC}$  and  $\overline{BD}$  that intersect at point  $E$ .

Which expression is not always true?

- 1)  $\overline{AC} \cong \overline{DB}$  diagonals  $\cong$
- 2)  $\overline{DC} \parallel \overline{AB}$  opposite sides  $\parallel$
- 3)  $\overline{DE} \cong \overline{AE}$  diagonals bisect each other and  $\cong$
- 4)  $\overline{AD} \cong \overline{CB}$  opposite legs  $\cong$

