

Geometry
Quadrilaterals

Match the properties of a quadrilateral with ALL quadrilaterals that have that property.

1. B, D The diagonals are congruent. a.) Parallelogram
2. A, B, C, D Both pairs of opposite sides are congruent. b.) Rectangle.
3. A, B, C, D Both pairs of opposite sides are parallel. c.) Rhombus
4. B, D All angles are congruent. d.) Square
5. C, D All sides are congruent.
6. A, B, C, D Diagonals bisect each other.
7. C, D Diagonals bisect opposite angles.

Determine whether the statement is TRUE or FALSE.

1. True If a quadrilateral is a rectangle, then it is a parallelogram.
2. False If a quadrilateral is a parallelogram, then it is a rhombus.
3. True If a quadrilateral is a square, then it is a rhombus.
4. False If a quadrilateral is a rectangle, then it is a rhombus.
5. True If a rhombus is a square, then it is a rectangle.

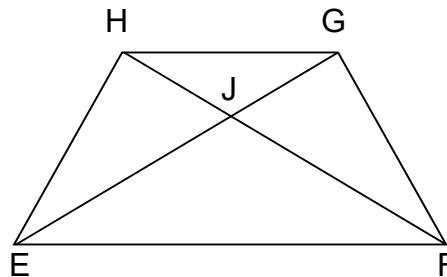
Determine whether the statement is ALWAYS, SOMETIMES, or NEVER true.

1. S A parallelogram has congruent diagonals.
2. A A rectangle has opposite angles congruent.
3. S A rhombus has all angles congruent.
4. S The diagonals of a rectangle bisect the angles.
5. A The diagonals of a square are perpendicular.

Trapezoid Warm Up

Name:

- 1) Given: $EFGH$ is an isosceles trapezoid with legs \overline{HE} and \overline{GF} . $EJ = 15x^2 + 16x$, $JF = 7$,
And $HJ = 2x$

Find: EG .

$$15x^2 + 16x - 7 = 0$$

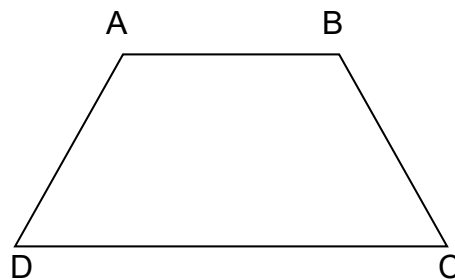
$$(5x + 7)(3x - 1) = 0$$

$$x = -\frac{7}{5}, \frac{1}{3}$$

$$HJ = \frac{2}{3}$$

$$EG = 7\frac{2}{3}$$

- 2) Given: $ABCD$ is an isosceles trapezoid.
 $\angle A = (x + 90)^\circ$, $\angle B = (2x + 4y - 40)^\circ$,
and $\angle C = (2y + 10)^\circ$. Find the measures
of all the angles.



$$x + 90 = 2x + 4y - 40$$

$$2y + 10 + 2x + 4y - 40 = 180$$

$$\left\{ \begin{array}{l} (x + 4y = 130) \cdot -2 \\ 2x + 6y = 210 \end{array} \right.$$

$$2x + 6y = 210$$

$$-2x - 8y = -260$$

$$-2y = -50$$

$$y = 25$$

$$x = 30$$

$$m\angle A = m\angle B = 120^\circ$$

$$m\angle C = m\angle D = 60^\circ$$