

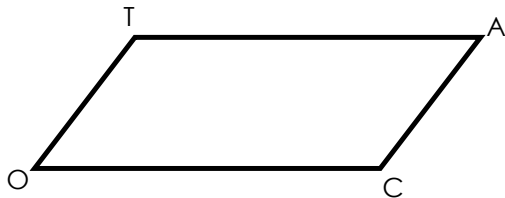
7.6 Level 7 Study Guide

State the properties of a Parallelogram



1. _____
2. _____
3. _____
4. _____
5. _____

In quadrilateral TACO, $\angle T + \angle A = 180^\circ$
and $\angle C + \angle A = 180^\circ$. Prove TACO is a
parallelogram.



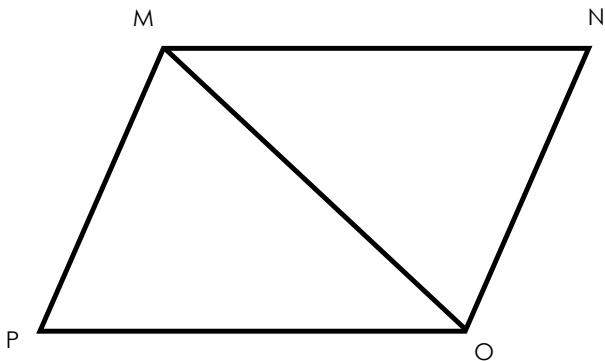
Given three distinct quadrilaterals, a square, a
rectangle, and a rhombus, which quadrilaterals
must have perpendicular diagonals?

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

In quadrilateral $ABCD$, the diagonals bisect its
angles. If the diagonals are *not* congruent,
quadrilateral $ABCD$ must be a

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

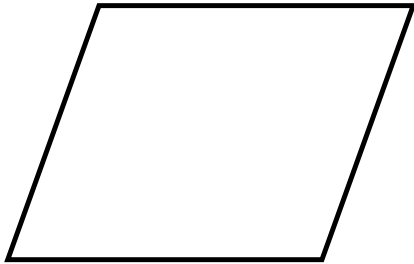
MO is a diagonal in parallelogram PMNO, and the measure of $\angle N = 97^\circ$ and the measure of $\angle PMO = 97^\circ$.
Find the measure of the missing angles in the chart below.



Angle	Measure	Reason
$\angle NMO$		
$\angle NOM$		
$\angle PMO$		
$\angle P$		

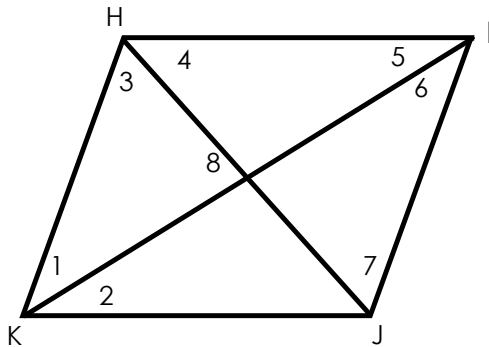
7.2 Properties of a rhombus

State the special properties of a rhombus



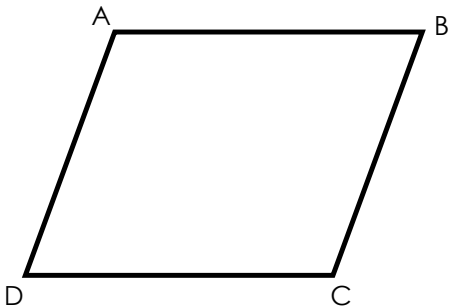
1. _____
2. _____
3. _____

IJ is a diagonal in rhombus HIJK. The $m\angle K = 56^\circ$. Find the measure of the missing angles in the chart below.



Angle	Measure	Reason
$\angle 1$		
$\angle 2$		
$\angle 3$		
$\angle 5$		
$\angle 6$		
$\angle 7$		
$\angle 8$		
$\angle 9$		

AB and CD intersect at point H in rhombus ABCD. $AC = 8$ and $BD = 6$.
Find the perimeter of ABCD.



Which statement is *false*?

- 1) All parallelograms are quadrilaterals.
- 2) All rectangles are parallelograms.
- 3) All squares are rhombuses.
- 4) All rectangles are squares.

Al says, "If $ABCD$ is a parallelogram, then $ABCD$ is a rectangle." Sketch a quadrilateral $ABCD$ that shows that Al's statement is *not* always true. Your sketch must show the length of each side and the measure of each angle for the quadrilateral you draw.

7.3 Properties of Squares and Rectangles

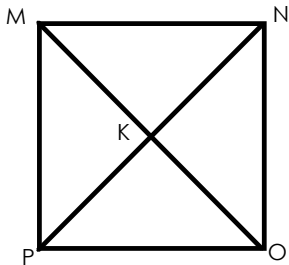
Write the special properties of a rectangle

1. _____
2. _____

Write the special properties of a square

1. _____
2. _____
1. _____
2. _____
3. _____

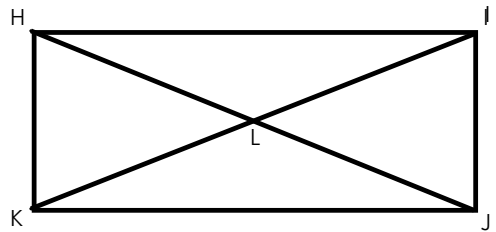
MNOP is a square. Find the measure of the missing angle



$\angle PMN =$ _____ Property: _____

$\angle MKP =$ _____ Property: _____

Parallelogram HIJK is a rectangle and $KI = 30$. Find the missing lengths for each diagonal.



$HJ =$ _____ Property: _____

$HL =$ _____ Property: _____

For which quadrilaterals (parallelogram/rectangle/rhombus/square) are the following statements true? List all that apply.

1. Opposite angles are congruent

2. The diagonals bisect each other

3. The diagonals are perpendicular.

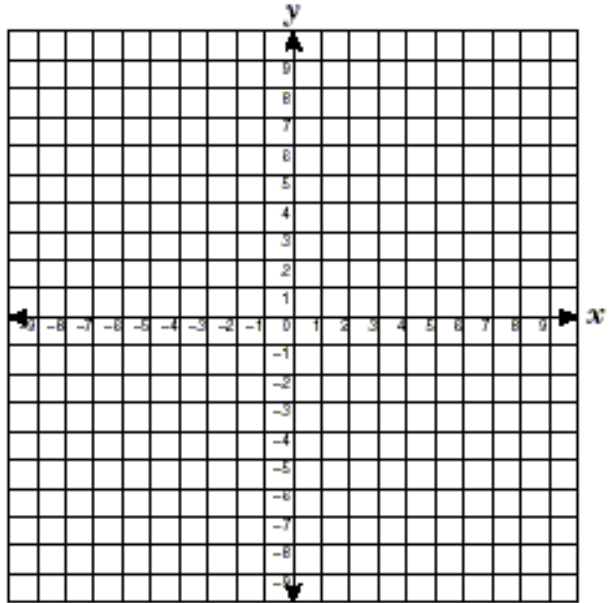
4. The diagonals bisect opposite angles.

5. Diagonals are congruent

6. All angles are congruent

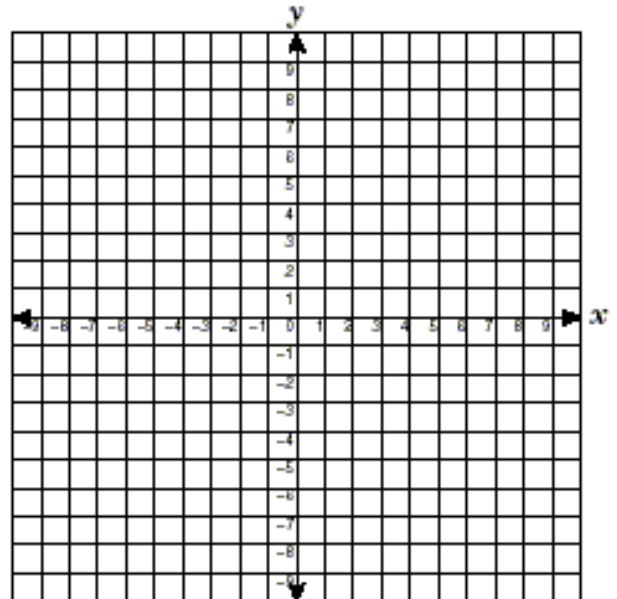
Graph quadrilateral PSFT with the given vertices. Prove the figure is a parallelogram.

$P(-5, 1)$, $S(-2, 2)$, $F(-1, -3)$, $T(2, -2)$;

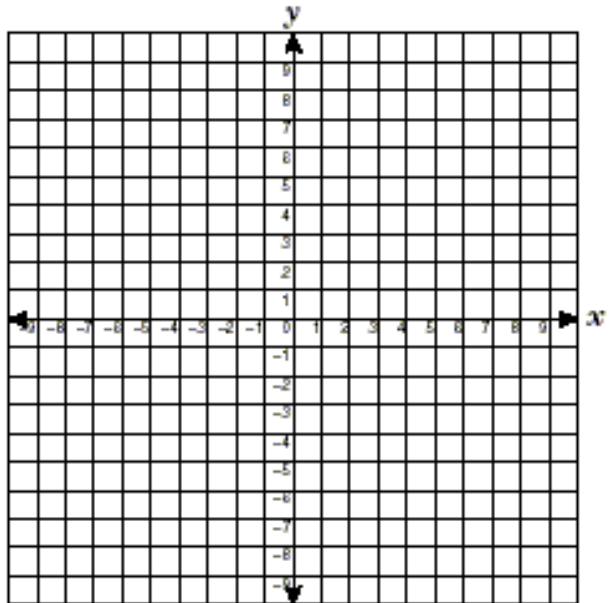


Graph quadrilateral EFGH with the given vertices. Prove the figure is a rhombus.

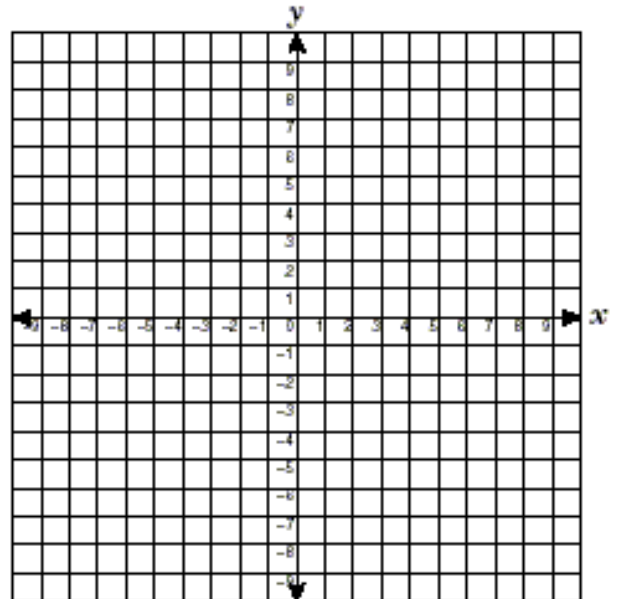
$E(-6, -3)$, $F(1, 0)$, $G(4, 7)$, $H(-3, 4)$.



Graph quadrilateral BRUH with the given vertices. Prove the figure is a rectangle.
 $B(-5, 1)$, $R(-7, 4)$, $U(-1, 8)$, $H(1, 5)$



Graph quadrilateral YASQ with the given vertices. $Y(1, -4)$, $A(5, -3)$, $S(6, -7)$. State the coordinate of Q so that YASQ is a square. Then, prove YASQ is a square.



You can do it!

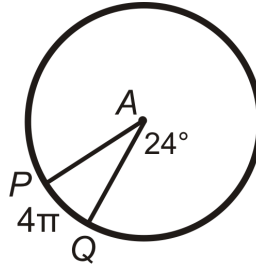
Review Questions

What is an equation of the line that passes through the point $(-2, 5)$ and is perpendicular to the line

whose equation is $y = \frac{1}{2}x + 5$?

- 1 $y = 2x + 1$
- 2 $y = -2x + 1$
- 3 $y = 2x + 9$
- 4 $y = -2x - 9$

In the diagram below of circle A, the length of \widehat{PQ} is 4π and $m\angle A = 24^\circ$. Determine the length of AP .



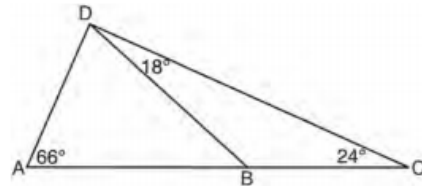
Lines p and q are intersected by line r , as shown below.



If $m\angle 1 = 7x - 36$ and $m\angle 2 = 5x + 12$, for which value of x would $p \parallel q$?

- 1 17
- 2 24
- 3 83
- 4 97

As shown in the diagram of $\triangle ACD$ below, B is a point on AC and DB is drawn.



If $m\angle A = 66$, $m\angle CDB = 18$, and $m\angle C = 24$, what is the longest side of $\triangle ABD$?
the measure of $\angle DBA$?