

Name: _____

Date: _____

UNIT 7

LESSON 4

AIM: HOW DO WE WRITE THE EQUATIONS OF PERPENDICULAR BISECTORS?

Do Now: For each set of coordinates, find the coordinates of the midpoint of the segment joining the two using the midpoint formula.

$$MIDPOINT = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

(a) $(-5, 7)$ and $(9, 15)$ (b) $(-8, 12)$ and $(5, 4)$

Determine the Equation of a Perpendicular Bisector		
<p>Step 1: Slope Formula Then find \perp slope</p>	<p>Step 2: Midpoint Formula</p>	<p>Step 3: Write Equation of Line Using \perp slope and midpoint</p>
$\frac{y_2 - y_1}{x_2 - x_1}$	$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$	$y - y_1 = m(x - x_1)$

Example 2: What is the equation of a perpendicular bisector to \overline{AB} where $A(-1, -3)$ and $B(3, 7)$?

Example 3: What is the equation of a perpendicular bisector to \overline{AB} where $A(2,8)$ and $B(-1,0)$.

Example 4: In rhombus $NOYA$, the coordinates of the endpoints of the diagonal \overline{NY} are $N(-11,5)$ and $Y(5,-7)$. Write an equation of the diagonal \overline{OA} that is the perpendicular bisector of \overline{NY} .

Practice NYTS(Now You Try Some!)

2. In rhombus $GEOM$, the coordinates of the endpoints of diagonal \overline{GO} are $G(2, -2)$ and $O(-4, 2)$. Write an equation of the line that contains diagonal \overline{EM} , the perpendicular bisector of \overline{GO} .

2. If \overline{AB} is defined by the endpoints $A(0, -1)$ and $B(8, 10)$, write an equation of the line that is the perpendicular bisector of \overline{AB} .

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UNIT 7

LESSON 4 HOMEWORK

1. In rhombus $MATH$, the coordinates of the endpoints of diagonal \overline{MT} are $M(-1, 1)$ and $T(7, -5)$. Write an equation of the line that contains diagonal \overline{AH} , the perpendicular bisector of \overline{MT} .

2. If \overline{AB} is defined by the endpoints $A(-3, 0)$ and $B(4, 10)$, write an equation of the line that is the perpendicular bisector of \overline{AB} .

3. Find an equation of the line passing through the point $(6, 5)$ and parallel to the line whose equation is $2y + 3x = 6$.