

Geometry(H)

Algebra Review with a Geometry Twist!

Let's review some formulas and concepts about lines from algebra.

Distance Formula

Midpoint Formula

Pythagorean Theorem

The slopes of parallel lines are _____.

The slopes of perpendicular lines are _____.

Let's try some review problems ...

For each problems use the points A(3,5) and B(-8,7)

1. Find the length of \overline{AB} .
2. Find the midpoint of \overline{AB} .
3. Find the equation of the line that passes through A and B.

4. Find the equation of the perpendicular bisector of \overline{AB} .


5. Find the equation of the line that is parallel to \overline{AB} and passes through $(-1,-2)$.

6. A line with $m = -1$ contains the points $(5,-2)$ and $(x,-8)$. Solve for x .

7. Find the value of a , so that the line through $(7,1)$ and $(4,8)$ is parallel to the line through $(2,a)$ and $(a,-2)$.

8. Points $R(-5, -3)$, $S(-1,-1)$ and $T(5,x)$ are collinear. Find the value of x .


9. $\triangle ABC$ is a right triangle with coordinates $A(-4,1)$ and $C(2,-1)$. Point B is on the y -axis. Find the coordinates of B that would make $m\angle B = 90^\circ$.



10. Find each value of k for which the lines $y = 9kx - 1$ and $kx + 4y = 12$ are perpendicular.


11. The distance between points $(1,2)$ and $(x,8)$ is 10. Find x .

12. $\triangle ABC$ had coordinates $A(-1,-6)$, $B(5,2)$ and $C(-3,-2)$. Classify this triangle by its sides and angles.



13. $\triangle SRT$ had coordinates $A(-1,-1)$, $B(2,0)$ and $C(0,10)$. Classify this triangle by its sides and angles.

14. Given isosceles triangle ABC with $AC = BC$ and vertices with coordinates $A(-1,4)$, $B(-3,-2)$ and $C(x,-1)$. Find x .



Finding the perpendicular bisector of a line segment



What information do we need to find the perpendicular bisector of a line segment?

Example A)

What is the equation of the perpendicular bisector of a line segment whose endpoints are $(-2, -1)$ and $(3, 4)$?



Example B)

Write the equation of the perpendicular bisector of the line segment that has endpoints at $(2, 3)$ and $(8, 3)$.



1. Write the equation of the perpendicular bisector of the line segment that has endpoints at $(-3, 4)$ and $(5, 8)$.

2. What is the equation of the perpendicular bisector of a line segment whose endpoints are $(-4, -1)$ and $(4, -6)$?

3. What is the equation of the perpendicular bisector of a line segment whose endpoints are $(1, -3)$ and $(7, 1)$?

4. Find the equation of the perpendicular bisector of a line segment whose endpoints are $(-5, -2)$ and $(-5, -9)$?

5. Find the equation of the perpendicular bisector of \overline{AB} .

$$A (0, 3) \quad B (2, -6)$$

6. Find the equation of the perpendicular bisector of \overline{OB} .

$$O (5, 1) \quad B (2, 4)$$

