3.5

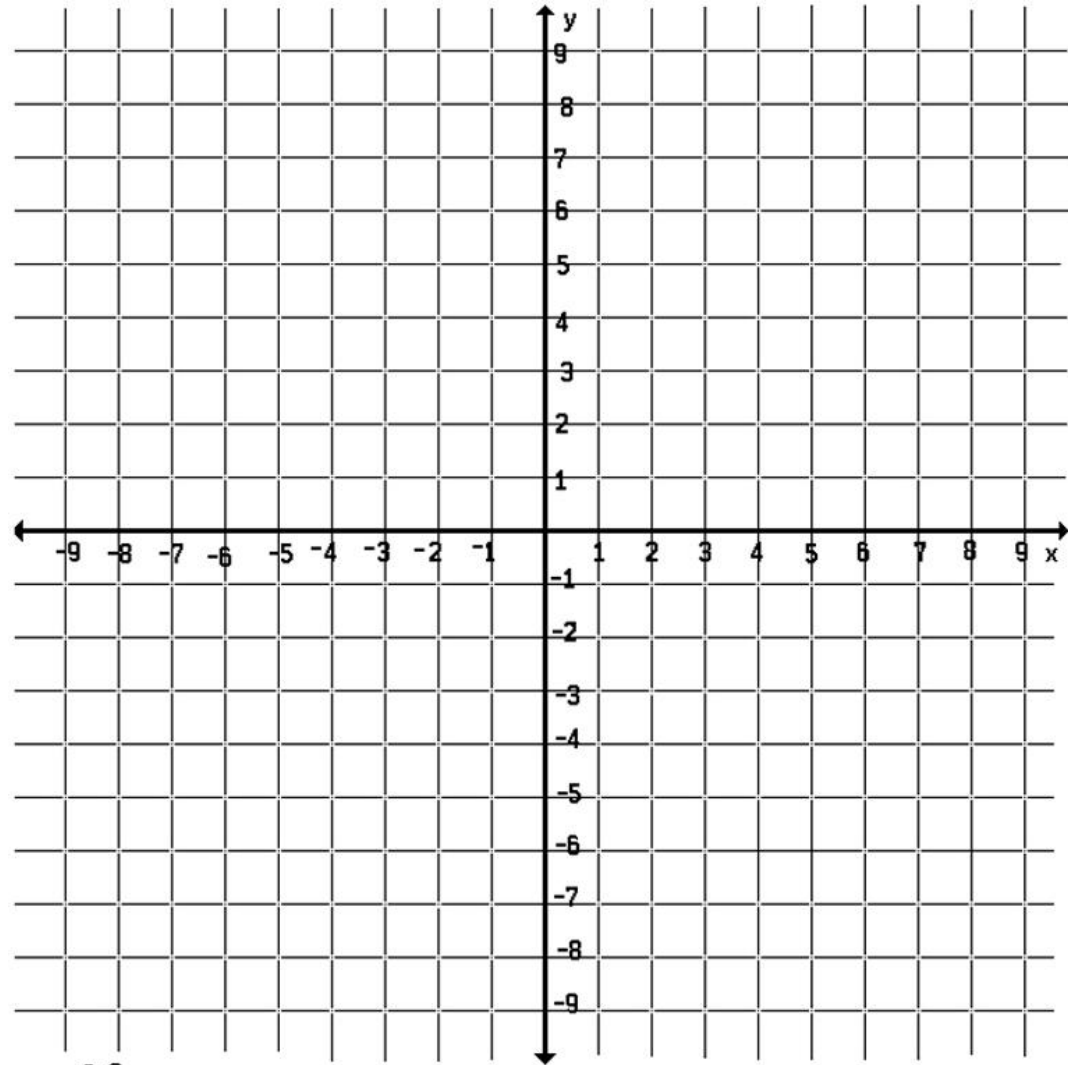# MIDPOINTS AND BISECTORS

Midpoints

1) Graph $\overline{AB}$ given A(1,1) and B(5,1)

2) Graph $\overline{CD}$ given C(3,3) and D(-3,3)

3) What is the midpoint of $\overline{AB}$?

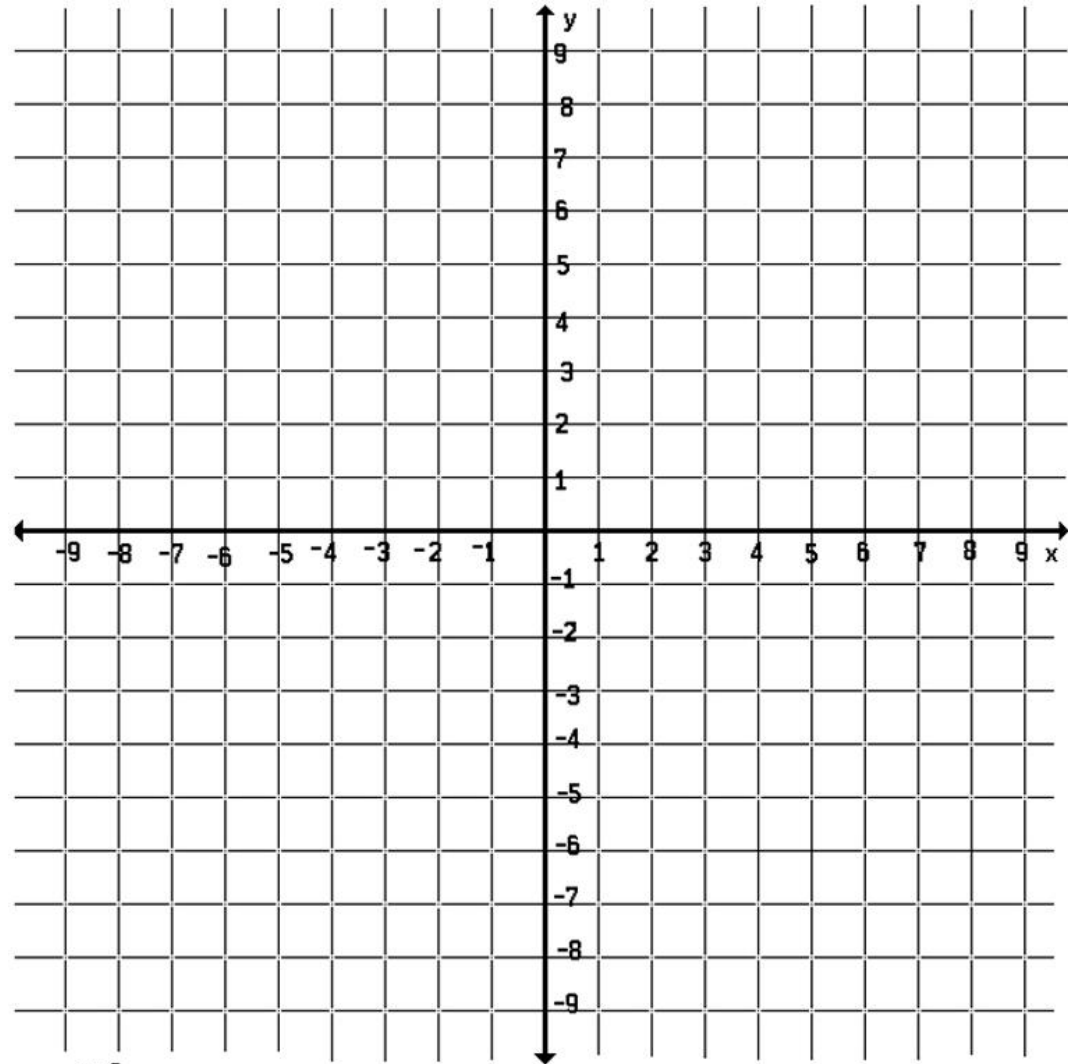4) What is the midpoint of $\overline{CD}$?

Midpoints

5) Graph $\overline{EF}$ given E(1,-2) and F(1,4)

6) Graph $\overline{GH}$ given G(3,2) and H(3,-2)

7) What is the midpoint of $\overline{EF}$?

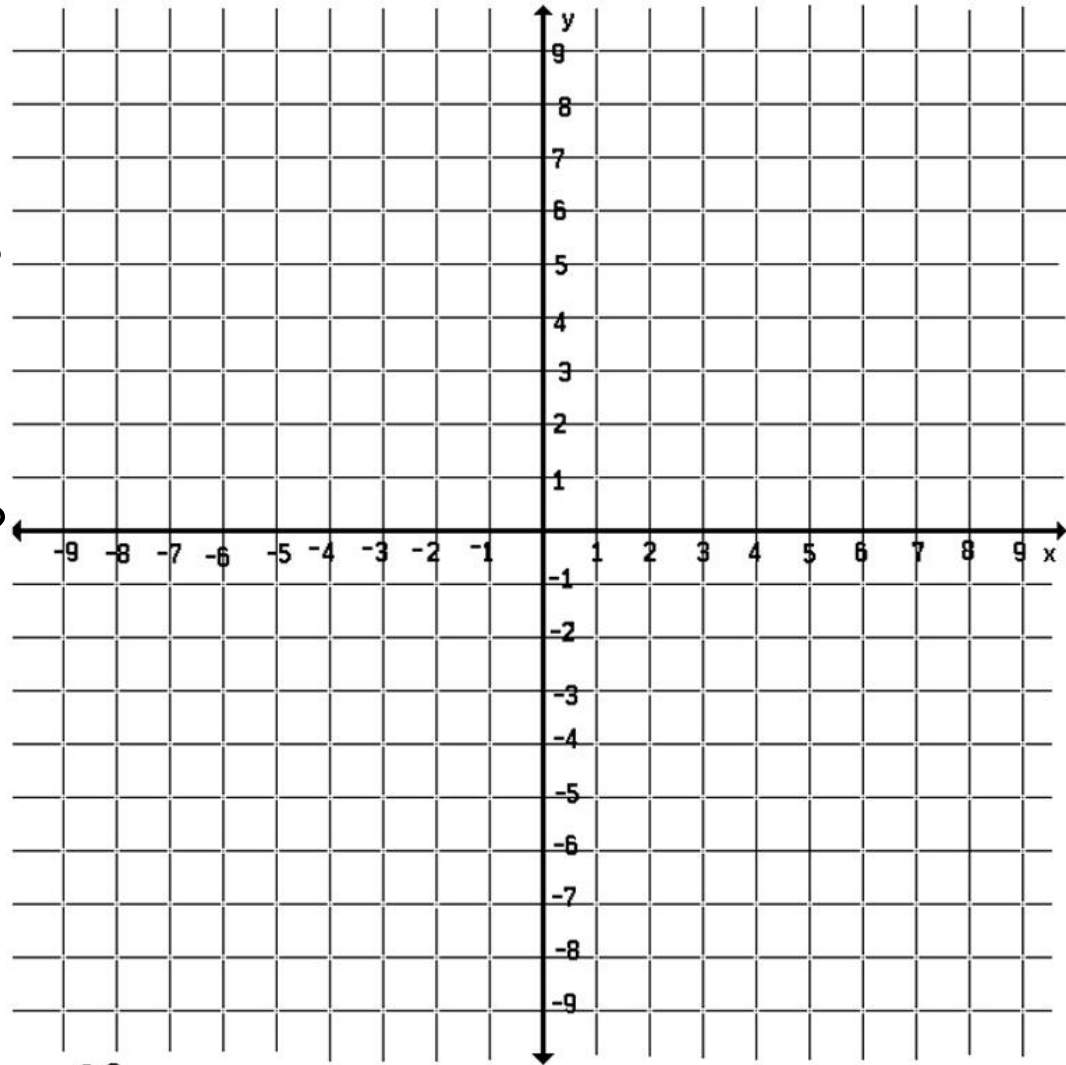8) What is the midpoint of $\overline{GH}$?

Midpoints

9) Graph $\overline{IJ}$ given I(-1,1) and J(3,3)

10) Graph $\overline{KL}$ given K(-1,-4) and D(5,-6)

11) What is the midpoint of $\overline{IJ}$?

12) What is the midpoint of $\overline{KL}$?

Is there any easier way to come up with the midpoint?

If we didn't want to graph the endpoints of a line segment, how would we find the midpoint of that line segment?

Midpoint Formula

If (x_1, y_1) and (x_2, y_2) are the coordinates of the endpoint of a segment, then the coordinates of the midpoint are:

CONSTRUCTIONS

1. **Duplicating a segment**

2. **Adding and Subtracting segments**

3. **Equilateral Triangle**

4. **60° Angle**

5. **Isosceles Triangle**

CONSTRUCTIONS

6. **Duplicating an angle**

7. **Adding angles**

8. **Duplicate Triangle**

9. **Parallel Lines from a point off the line**

CONSTRUCTIONS

10. Perpendicular Bisector

11. Perpendicular from a point off a line

12. Half of a segment

13. Median of a Triangle

14. Angle Bisector