6.2 Distance and Midpoint Formulas

Line Segment: Part of a line that has two endpoints. The line segment is named by these two endpoints.
Midpoint: The distance halfway between two points
Segment Bisector: A line that cuts a second line directly in half (located at the midpoint).

The Distance Formula	The Midpoint Formula

THE DISTANCE FORMULA
Find the distance between each of the following points.
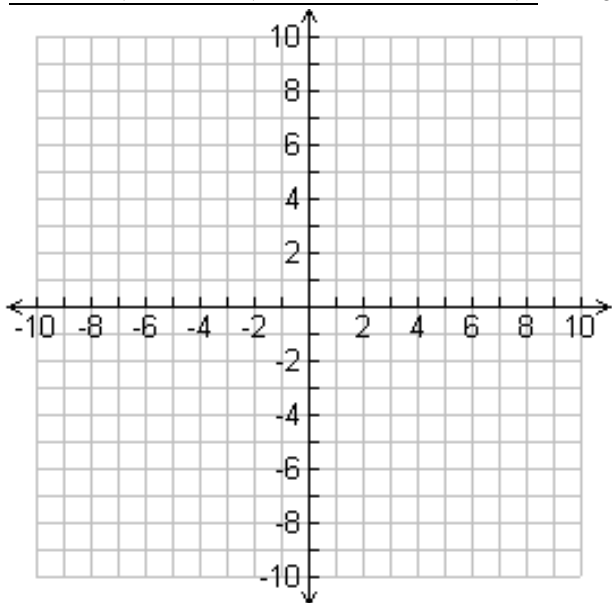
a) R(5, 1) and S(-3, -3)

b) T(0, 0) and P(12, 8)

c) A triangle has vertices at (1, 3), (2, -3) and (-1, -1). What is the approximate perimeter of the triangle?
Draw a picture to help.

DISCOVERING THE MIDPOINT FORMULA: Find the midpoint between each of the following points.

a) E(-2, 6) and F(10, -8) – use the graph to the left.

b) M(11, -2) and N(-9, 13)

c) R is the midpoint of segment $\overline{PS}$. Q is the midpoint of segment $\overline{RS}$. P is located at (8, 10) and S is located at (12, -6). What are the coordinates of Q? *Draw and label a picture to help.*

SPLIT FORMULA IN TWO:

1. Plug in what you know 2. Solve for x_2	1. Plug in what you know 2. Solve for x_2

Find the coordinates of C if B(4, 3) is the midpoint of AC and A is located at (6, -12).

Putting it Together
What is the approximate length of the segment $\overline{CD}$ if $\overline{CD}$ bisects $\overline{AB}$ at C and A(3, 5), B(7, -3), and D(-4, 2)? *Draw and label a picture to help.*