Math 1 Distance and Midpoint Formulas Unit 6

**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).

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| **The Distance Formula** | **The Midpoint Formula** |
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**The Distance Formula**

Find the distance between each of the following points.

1. R(5, 1) and S(-3, -3)
2. T(0, 0) and P(12, 8)
3. 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.

1. E(-2, 6) and F(10, -8) – use the graph to the left.
2. M(11, -2) and N(-9, 13)
3. R is the midpoint of segment $\overbar{PS}$. Q is the midpoint of segment $\overbar{RS}$. 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.*

**Midpoint Formula: Working It Backwards**

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| **Split Formula in Two:** |
| 1. Plug in what you know
2. Solve for x2
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2. Solve for x2
 |

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 $\overbar{CD}$ if $\overbar{CD} $bisects $\overbar{AB}$ at C and A(3, 5), B(7, -3), and D(-4, 2)? *Draw and label a picture to help.*