

PROBLEM-OF-THE-DAY: ALGEBRA 1

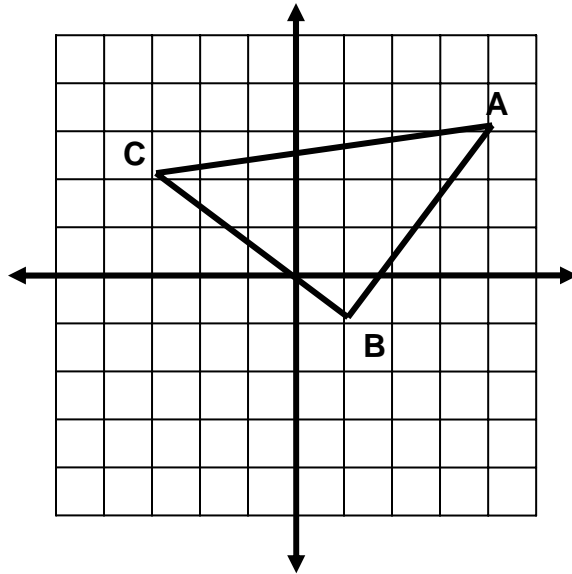
WEEK: January 8 to January 11

DAY: Tuesday

RISD Objective: Given two points in the coordinate plane, students will be able to determine the coordinates of the midpoint of the segment connecting the points, the slope of the line that passes through the points, and the distance between the points.

PROBLEM #78

Find the perimeter of triangle ABC shown below.



MODEL SOLUTION #78

We will use the distance formula to find the lengths of each side.

$$\text{DISTANCE FORMULA: } D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

A (4, 3) B (1,-1) C (-3, 2)

$$\text{AB} = \sqrt{(4 - 1)^2 + (3 - (-1))^2} = \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$$

$$\text{BC} = \sqrt{(1 - (-3))^2 + (-1 - 2)^2} = \sqrt{4^2 + 3^2} = \sqrt{16 + 9} = \sqrt{25} = 5$$

$$\text{CA} = \sqrt{(-3 - 4)^2 + (2 - 3)^2} = \sqrt{(-7)^2 + (-1)^2} = \sqrt{49 + 1} = \sqrt{50} \approx 7.1$$

To find the perimeter we add the lengths of the sides.

$$\text{Perimeter} = \text{AB} + \text{BC} + \text{CA} = 5 + 5 + 7.1 = 17.1$$

So, the perimeter of the triangle is about 17.1 units.