AGS 1 Name: _____ Period: _____ Date: _____

Notes 8.7 Geometry Constructions & Congruence

Warmup

Use the points (8, 3) and (-2, 2) to find each of the following: $y = \frac{1}{10}x + 2\frac{1}{5}$

a) Distance

$d = \sqrt{(2-3)^2 + (-2-8)^2}$

$d = \sqrt{1+100}$

$d = \sqrt{101}$

$d = 10.04$

b) Slope

$\frac{2-3}{-2-8}$

$m = \frac{-1}{-10} = \frac{1}{10}$

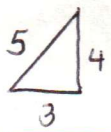
c) Equation

$y = m(x - x_1) + y_1$

$y = m(x - 8) + 3$

$y = \frac{1}{10}(x - 8) + 3$

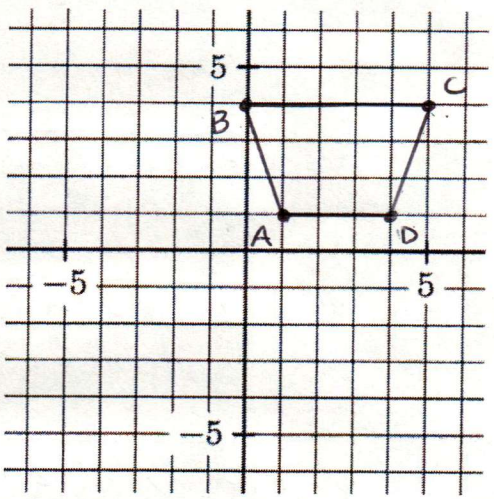
$y = \frac{1}{10}x - \frac{8}{10} + 3$

Word	Meaning/Notation	Example
Perimeter	The distance around a geometric shape	$3+4+5 = 12$ 

Finding the perimeter of a quadrilateral on a coordinate graph.

Coordinates of ABCD:

A (1, 1)
B (0, 4)
C (5, 4)
D (4, 1)



Length of $\overline{AB}$: $\sqrt{(1-0)^2 + (1-4)^2} = \sqrt{10} \approx 3.16$

Length of $\overline{BC}$: 5

Length of $\overline{CD}$: $\sqrt{(5-4)^2 + (4-1)^2} = \sqrt{10} \approx 3.16$

Length of $\overline{DA}$: 3

Perimeter of ABCD =

$3.16 + 5 + 3.16 + 3 = 14.32$

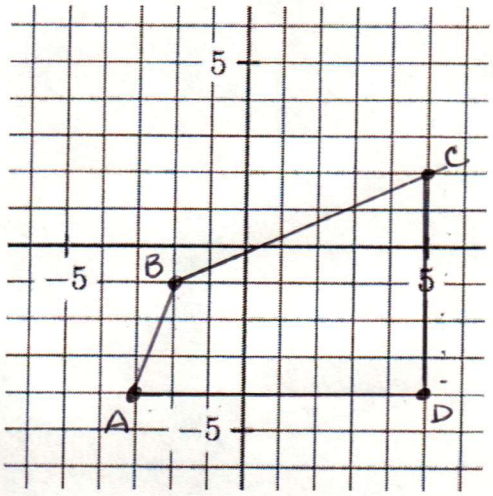
Distance Formula

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Which side requires you to use the distance formula to find the length?

$\overline{BA}$ and $\overline{CD}$

Coordinates of ABCD: A (-3, -4)
B (-2, -1)
C (5, 2)
D (5, -4)



Length of $\overline{AB}$: $\sqrt{(-3-2)^2+(-4-1)^2} = \sqrt{10} \approx 3.16$

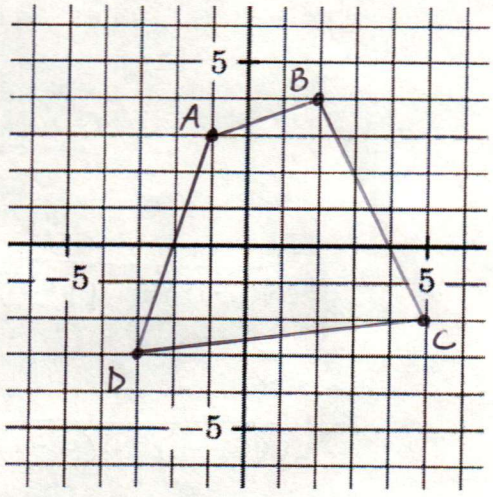
Length of $\overline{BC}$: $\sqrt{(-2-5)^2+(-1-2)^2} = \sqrt{58} \approx 7.62$

Length of $\overline{CD}$: 6

Length of $\overline{DA}$: 8

Perimeter of ABCD = $3.16 + 7.62 + 6 + 8 = 24.78$

Coordinates of ABCD: A (-1, 3)
B (2, 4)
C (5, -2)
D (-3, -3)



Length of $\overline{AB}$: $\sqrt{(-1-2)^2+(3-4)^2} = \sqrt{10} \approx 3.16$

Length of $\overline{BC}$: $\sqrt{(2-5)^2+(4-2)^2} = \sqrt{45} \approx 6.71$

Length of $\overline{CD}$: $\sqrt{(5-3)^2+(-2-3)^2} = \sqrt{65} = 8.06$

Length of $\overline{DA}$: $\sqrt{(-1-3)^2+(3-3)^2} = \sqrt{40} \approx 6.32$

Perimeter of ABCD = $3.16 + 6.71 + 8.06 + 6.32 = 24.25$