Sec1H	Notes 5-5 Applications of Distance Formula	Unit 5

Vocabulary Words

Perimeter: length around the outside of a shape

Add up all the sides

Examples of Perimeter:

Calculating Perimeter: 1. Use P.T. or D.F. to find each side length

2. Add up all the sides

Area: space inside a shape

□ = b·h △ = $\frac{1}{2}$·b·h

Picture:

Examples of Area:

Calculating Area of a Rectangle:

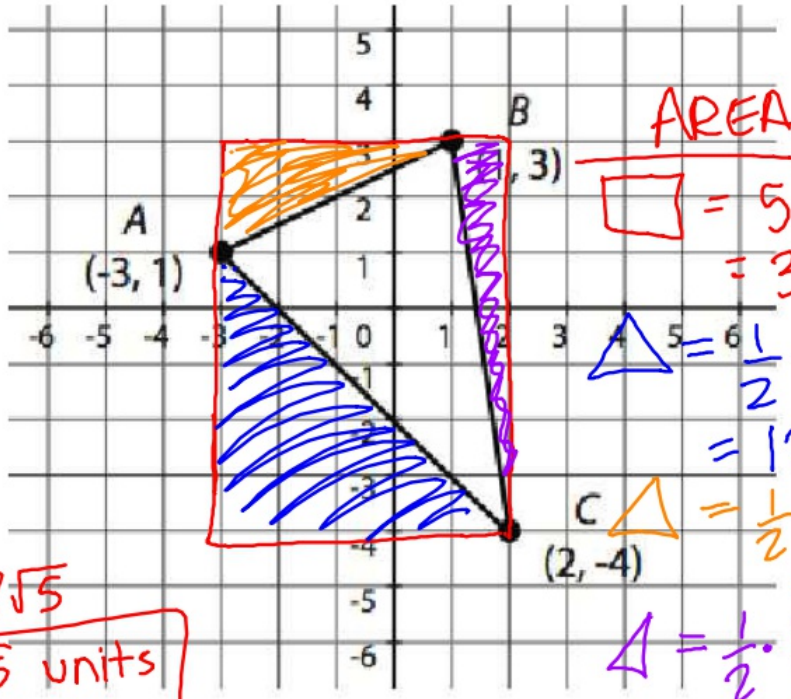
1. Use P.T. or D.F. to find base & height
2. b·h = Area

Calculating Area of a Triangle:

1. Draw a □ around the △
2. Find the area of the □
3. Find the area of the right △
4. Area − Area of △

Sec1H	Notes 5-5 Applications of Distance Formula	Unit 5

Example 1: Triangle ABC has vertices A(-3, 1), B(1, 3), and C(2, -4). Calculate the perimeter of the triangle.



$\overline{AB} = \sqrt{(-3-1)^2+(1-3)^2}$
$= 2\sqrt{5}$

$\overline{BC} = \sqrt{(1-2)^2+(3--4)^2}$
$= 5\sqrt{2}$

$\overline{CA} = \sqrt{(2--3)^2+(-4-1)^2}$
$= 5\sqrt{2}$

Perimeter $= 5\sqrt{2}+5\sqrt{2}+2\sqrt{5}$
$= 10\sqrt{2} + 2\sqrt{5}$ units
18.61 units

AREA
$= 5 \cdot 7$
$= 35$

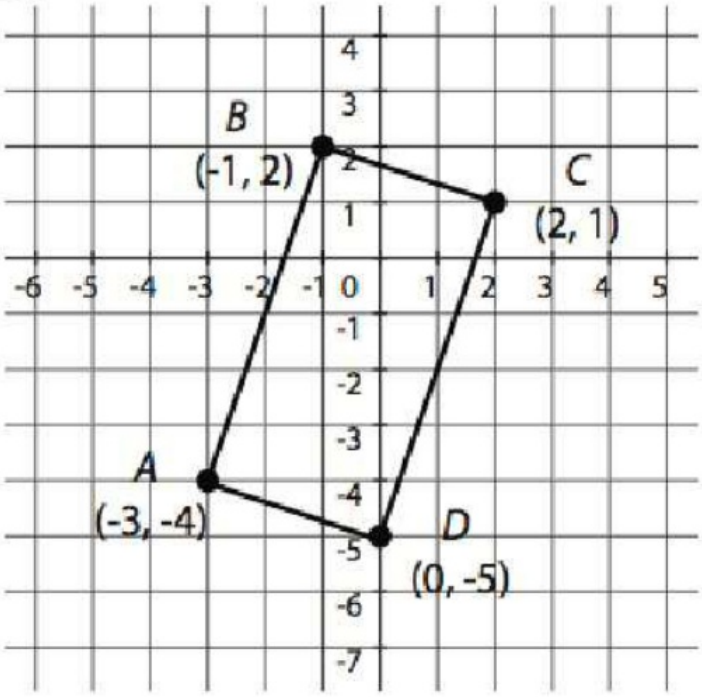
$= \frac{1}{2} \cdot 5 \cdot 5$
$= 12.5$

$= \frac{1}{2} \cdot 2 \cdot 4$
4

$= \frac{1}{2} \cdot 1 \cdot 7$
$= 3.5$

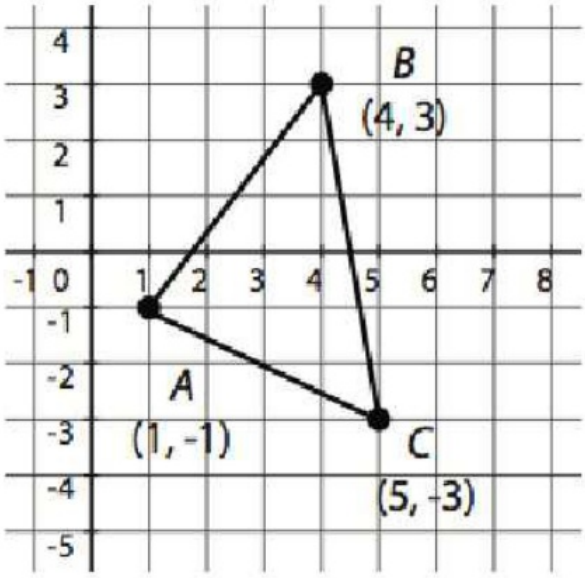
$35 - 12.5 - 4 - 3.5$
15 units^2

Example 2: **Rectangle ABCD has vertices A(-3, -4), B(-1, 2), C(2, 1), and D(0, -5). Calculate the area and perimeter of the rectangle.**



Sec1H	Notes 5-5 Applications of Distance Formula	Unit 5

Example 3: **Triangle ABC has vertices A(1, -1), B(4, 3), and C(5, -3). Calculate the area of the triangle.**



Definition of Circle: Every point on the circle is the same distance from the center. (Radius)

Sec1H	Notes 5-5 Applications of Distance Formula	Unit 5

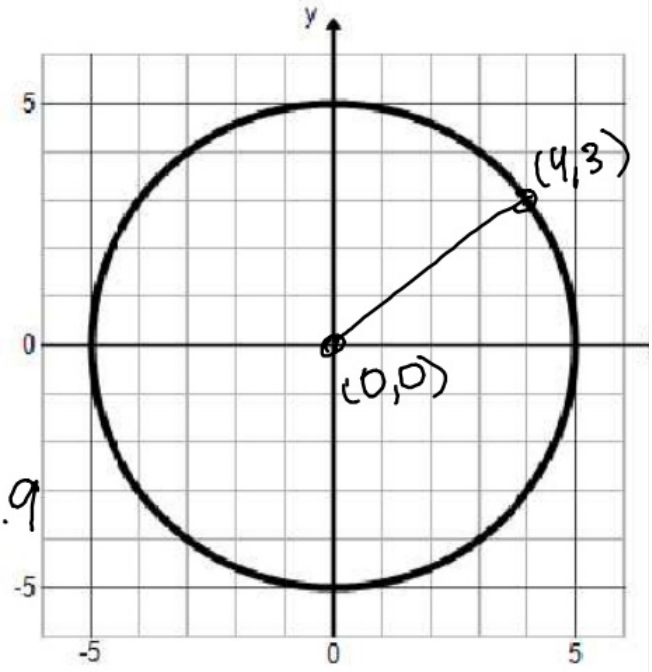
Example 4: Given this circle with an origin of the center and radius 5...

(0,0)

A. Is (4, 3) on the circle?

$\sqrt{(0-4)^2+(0-3)^2} = 5$

Yes



B. Is (-2, -4.5) on the circle?

$\sqrt{(0--2)^2+(0--4.5)^2} = 4.9$

NO

C. Is $(\sqrt{7},\ 3\sqrt{2})$?

$\sqrt{(0-\sqrt{7})^2+(0-3\sqrt{2})^2}$

Example 5: **Given a circle with radius 4 and centered at (1, 3): prove whether or not the following points are on the circle.**

(1, 3)

A. (3.5, 6)

$\sqrt{(3.5-1)^2+(6-3)^2} = 3.9$

NO

B. (1, 7)