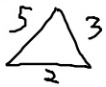
Vocabulary Words

Perimeter:
distance around outside of polygon.

Examples of Perimeter:



$5+3+2=10$

Calculating Perimeter:
add length of all sides

Area:
the space inside

Picture:

1	2	3
4	5	6

6 square units

Examples of Area:

Calculating Area of a Rectangle:
Rec. $A = b \cdot h$
~~Tri. $A = \frac{1}{2}bh$~~

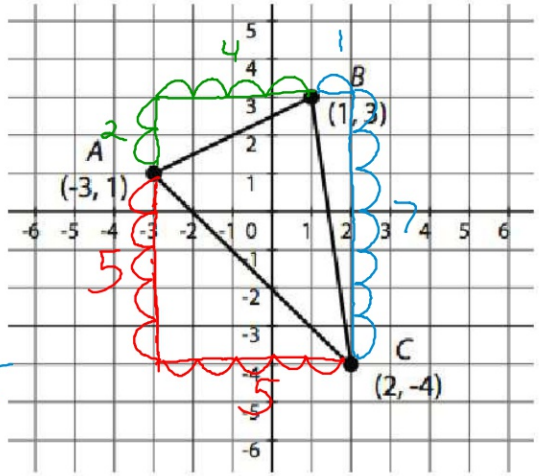
Calculating Area of a Triangle:
$A = \frac{1}{2}bh$

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

$AB = \sqrt{2^2+4^2}$
$= \sqrt{20}$
$= 2\sqrt{5}$

$AC = \sqrt{5^2+5^2}$
$= 5\sqrt{2}$

$BC = \sqrt{1^2+7^2}$
$= 5\sqrt{2}$



$P = 2\sqrt{5} + 5\sqrt{2} + 5\sqrt{2}$

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

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

Perimeter

$AB = \sqrt{2^2 + 6^2} = 2\sqrt{10}$

$CD = 2\sqrt{10}$

$AD = \sqrt{1^2 + 3^2} = \sqrt{10}$

$BC = \sqrt{10}$

$2\sqrt{10} + \sqrt{10} + 2\sqrt{10} + \sqrt{10}$

$6\sqrt{10}$ units

Area

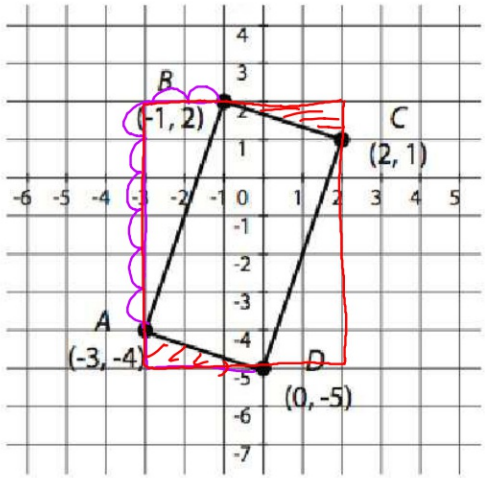
$2\sqrt{10} \cdot \sqrt{10}$

$2\sqrt{100}$

$2 \cdot 10$

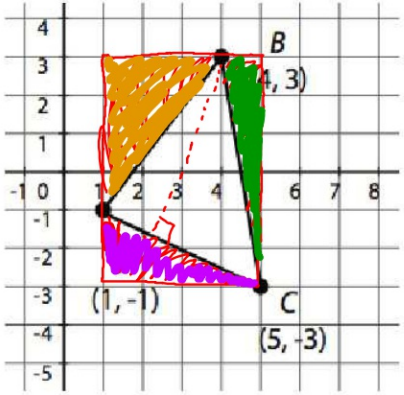
20 units^2

35
- 3
32
-12
20



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

24
-4
-3
-6
11 units^2



Definition of Circle:

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

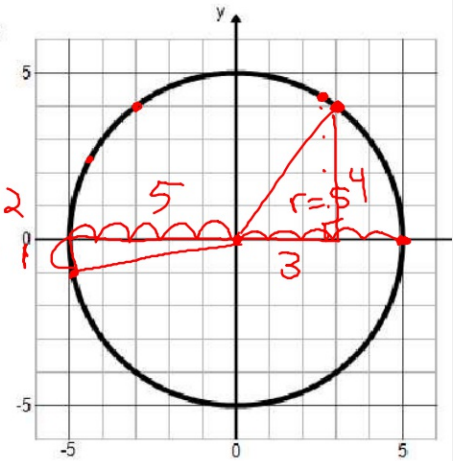
A. Pick a point that looks like it is on the circle and check if it is.

$\sqrt{3^2+4^2}$

(3,4) (0,0)

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

$d = 5$



B. Pick another point, and check if it is on the circle.

(−5, −1)

$\sqrt{5^2+1^2}$ $\sqrt{26}$

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

2.6 4.2

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

(0, 0)

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

Example 5: Given a circle with radius 4 and centered at (1, 3): determine if the following points are on the circle.

A. (3.5, 6) (1, 3)

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

$= 3.9$

B. (1, 7) (1, 3)

$\sqrt{(1-1)^2+(7-3)^2}$

$= 4$