

# AGENDA - Unit 9 -7

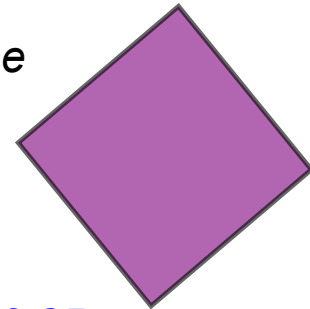
## Area and Perimeter in the Coordinate Plane

Go over HW 9.6

- Notes 9.7

HW - 9.7

- TEXT BOOK: p. 619 # 6-7, (no #8)13, 20,25
- NEED GRAPH PAPER

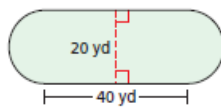


6. **Interior Decorating** Barbara is getting carpet installed in her living room and hallway. The cost of installation is \$6 per square yard. What is the total cost of installing the carpet? **\$270**



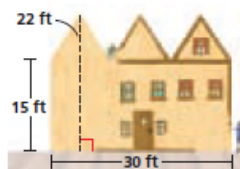
Textbook p.609 #6, 10, 13, 23

10.



$A \approx 1114.2 \text{ yd}^2$

13. **Drama** Pat is painting a stage backdrop for a play. The paint he is using covers 90 square feet per quart. How many quarts of paint should Pat buy? **7 qt**



23. This problem will prepare you for the Multi-Step Test Prep on page 614.

A school crossing sign has the dimensions shown.

- Find the area of the sign.  $A = 675 \text{ in}^2$
- A manufacturer has a rectangular sheet of metal measuring 45 in. by 105 in. Draw a figure that shows how 6 school crossing signs can be cut from this sheet of metal.
- How much metal will be left after the six signs are made?  $675 \text{ in}^2$



GEOMETRY + LAB

Name: \_\_\_\_\_ Section: \_\_\_\_\_ Date: \_\_\_\_\_

9-5R & 9-7L Notes: Coordinate Plane Composite Figures

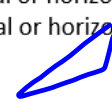
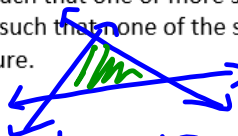
**Coordinate Plane Figures**

If we use a coordinate plane, what new first step would we need to take?

**GRAPH IT!**

**3 types of given information:**

1. Points that are vertices of a figure such that one or more sides are vertical or horizontal.
2. Points that are vertices of a figure such that none of the sides are vertical or horizontal.
3. Lines that intersect to enclose a figure.

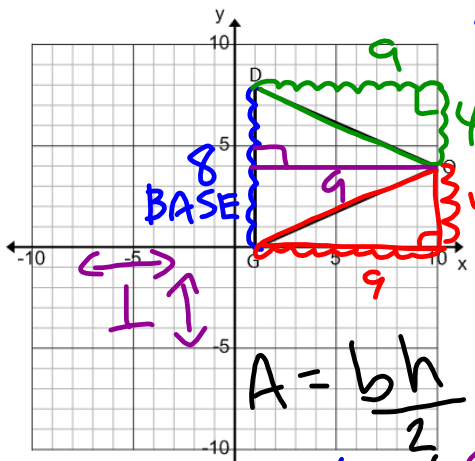


**Remember:**

- You can *only* count lengths that are **HORIZ** or **VERTICAL** in the coordinate plane. For all other lengths, you need to use the **PYTHAG TM** or **DISTANCE FORMULA**.
- The base and height for any simple figure must be **L**.
- The slopes of perpendicular lines/segments are **OPPOSITE RECIPROCAL**.

**Case 1: – You are given points such that one or more sides is vertical or horizontal.**

Ex 1: Find the perimeter and area of  $\triangle DOG$  with vertices  $D(1,8)$ ,  $O(10,4)$ ,  $G(1,0)$



$$P = DO + OG + GD$$

$$= 8 + \sqrt{97} + \sqrt{97}$$

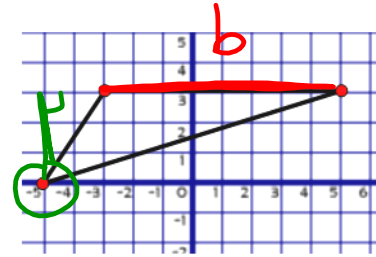
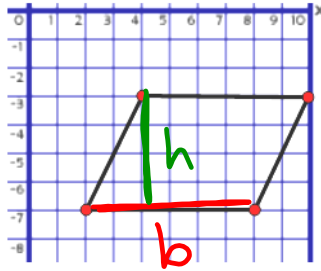
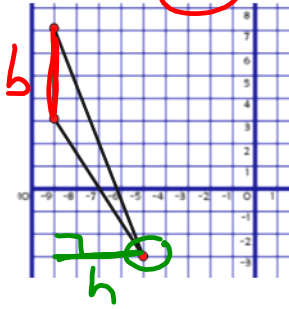
$$P = 8 + 2\sqrt{97}$$

$$A = \frac{bh}{2}$$

$$A = \frac{(8)(9)}{2} = 36 \text{ units}^2$$

OG:  $a^2 + b^2 = c^2$   
 $4^2 + 9^2 = c^2$   
 $16 + 81 = c^2$   
 $\sqrt{97} = \sqrt{c^2}$   
 $\sqrt{97} = OG$

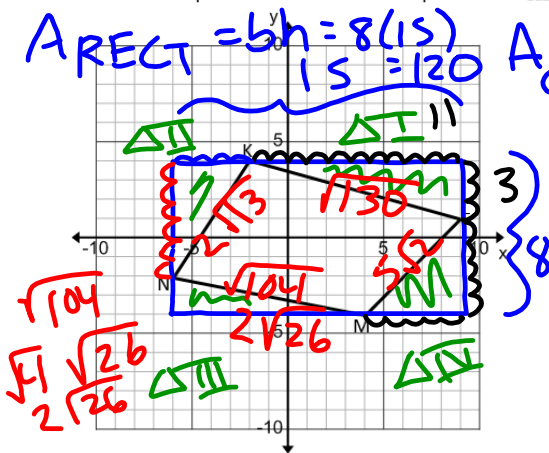
Ex 2: Draw in the base and height for each of the following triangles:



Case 2: You are given points such that none of the sides are vertical or horizontal

BOX METHOD

Ex 1: Find the perimeter and area of the quadrilateral  $KLMN$   $K(-2, 4)$   $L(9, 1)$   $M(4, -4)$   $N(-6, -2)$



$$A_{\text{RECT}} = bh = 8(15) = 120$$

$$A_{\text{QUAD}} = A_{\text{RECT}} - \Delta I - \Delta II - \Delta III - \Delta IV$$

$$\Delta I = \frac{bh}{2} = \frac{3(11)}{2} = 16.5$$

$$\Delta II = 12$$

$$\Delta III = 10$$

$$\Delta IV = \frac{(5)(5)}{2} = 12.5$$

$$P = KL + LM + MN + NK$$

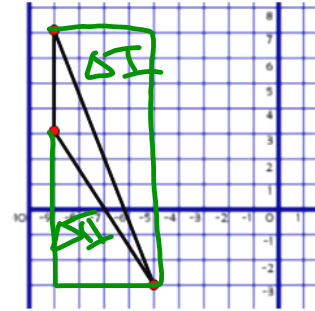
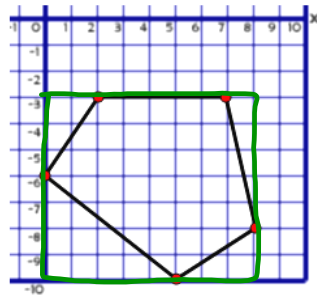
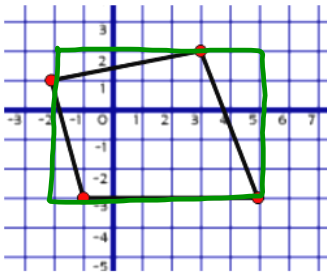
$$P = \sqrt{130} + 5\sqrt{2} + 2\sqrt{26} + 2\sqrt{13}$$

UNITS

$$A_{\text{QUAD}} = 120 - 16.5 - 12 - 10 - 12.5$$

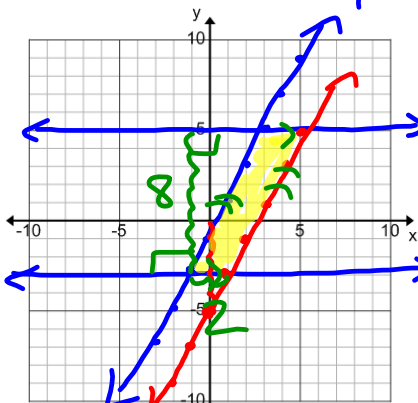
$$A_{\text{QUAD}} = 69 \text{ UNITS}^2$$

Ex 2: Draw in the box for each of the following polygons:



**Case 3:** - You are given equations of lines that enclose a shape

Find the perimeter and area of the shape bounded by  $y = 5$ ,  $y = -3$ ,  $y = \frac{2}{1}x - 1$  and the dilation of the line  $y = \frac{2}{1}x - 1$  by a scale factor of 5.



$D \rightarrow$  SLOPE IS PRES.

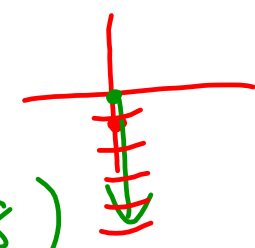
$y = \frac{2}{1}x - 1$      $b(0, -1)$   
 $m = \frac{2}{1}$

$y = \frac{2}{1}x + b'$   
 $y = \frac{2}{1}x - 5$

$B(0, -1) \rightarrow B'(0, -5)$

$A_{\square} = bh$   
 $A_{\square} = (2)(8)$

$A_{\square} = 16$   
 UNITS<sup>2</sup>



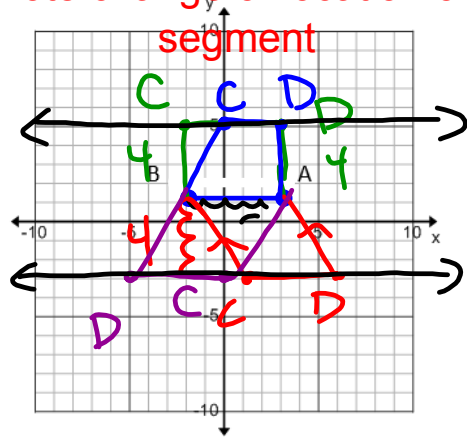
Using Dimensions in the Coordinate Plane to Locate Vertices

1) Which of the following could be the location of the other two vertices of parallelogram ABCD with an area of 20 units<sup>2</sup> given A(-2,1) and B(3,1)? Circle all which apply and state if any special parallelogram is formed.

a. C(-2,5) and D(3,5) **RECT**  
 b. C(1,-3) and D(6,-3) **TRAP**  
 c. C(0,5) and D(3,5)  
 d. C(0,-3) and D(-5,-3)

$A = b(h)$   
 $20 = (5)h$   
 $h = 4$   
**▭ABDC**

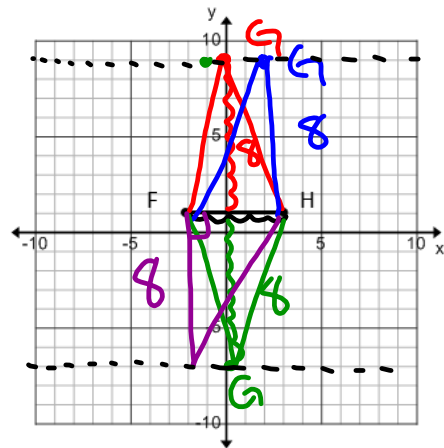
Note change of location of segment



2) Given the area of triangle FGH is 20 units<sup>2</sup>, determine three possible locations and state the coordinates for G with F(-2,1) and H(3,1).

$A = \frac{bh}{2}$   
 $20 = \frac{(5)(h)}{2}$   
 $40 = sh$   
 $8 = h$

G(0,9)  
 G(2,9)  
 G(0,-7)  
 G(-2,-7)



- 3) If the perimeter of a rhombus is 20 units and two vertices are located at  $(-2,1)$  and  $(3,1)$ , determine two possible sets of coordinates for the other two vertices.

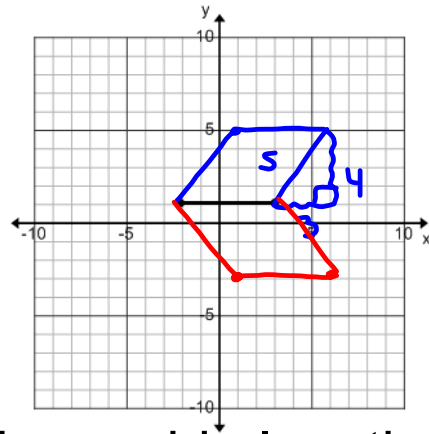
$$A_{\text{Rhomb}} = bh$$

$$20 = (5)h$$

$$4 = h$$

$$(1, 5) \text{ and } (6, 5)$$

$$(1, -3) \text{ and } (6, -3)$$



Must be a rhombus - side length must be 5 so can't just go 4 units vertically from the endpoints