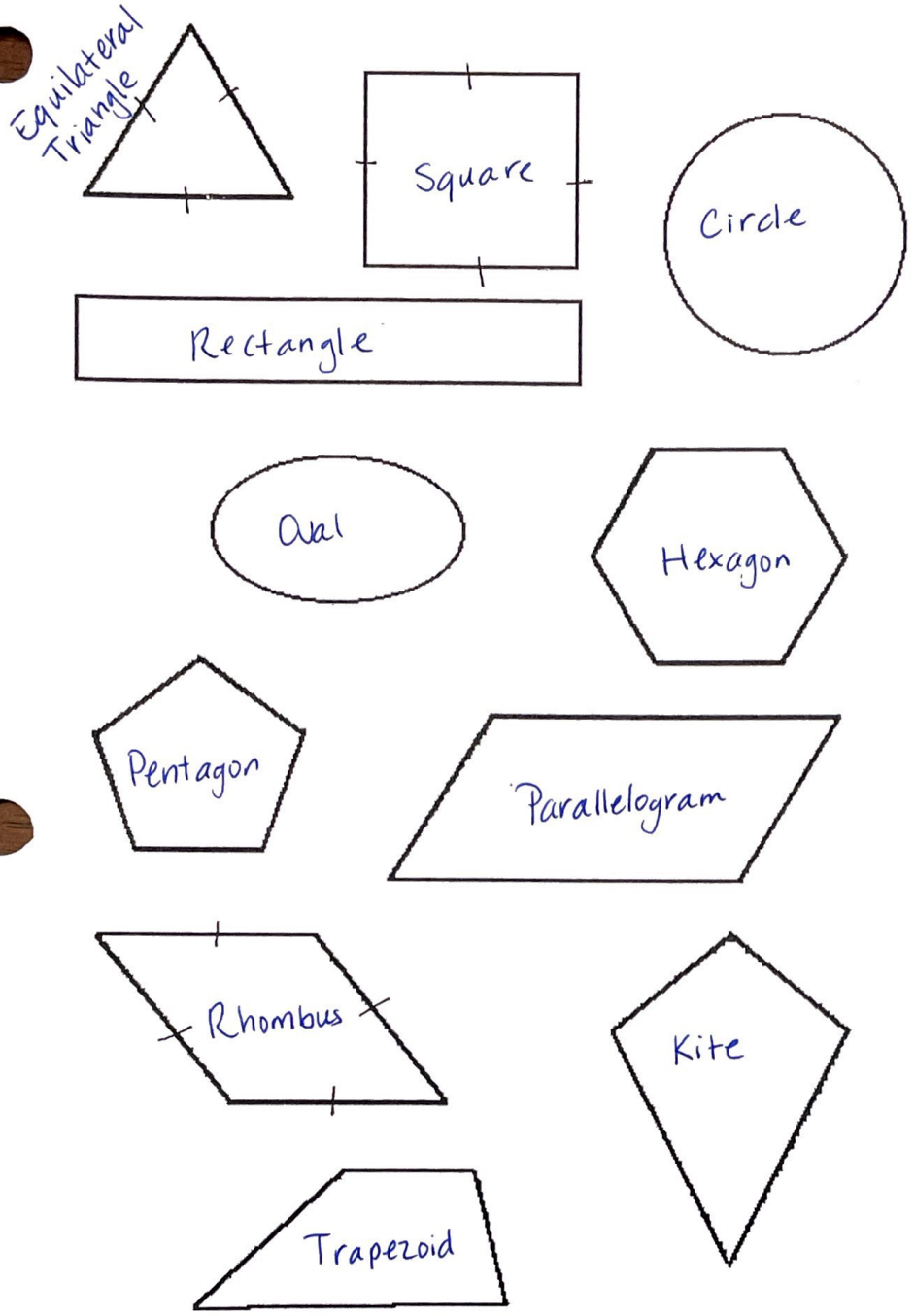
Name each figure



Area formulas:

Square/ rectangle/ rhombus/ parallelogram: bh

Triangle: $\frac{1}{2}bh$

Trapezoids: $\frac{1}{2}h(b_1+b_2)$

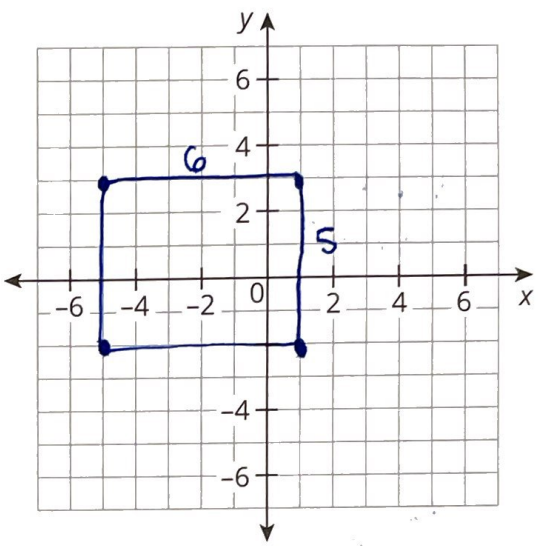
Identifying Polygons on the Plane

HABITS OF MIND
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

The Cartesian coordinate plane allows mathematicians to use coordinates to analyze geometric figures.

1 Graph the points on the coordinate plane and connect them to form a polygon.

x	y
1	−2
−5	−2
−5	3
1	3



(a) What polygon did you form? **Justify your answer.**

Rectangle
It has 4 right angles

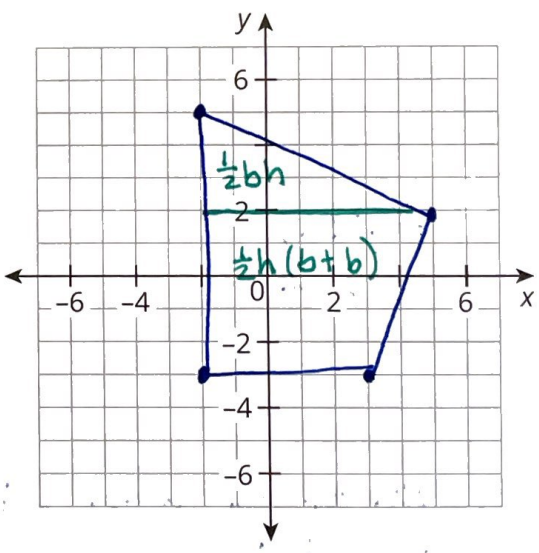
(b) Determine the perimeter and area of the polygon.

$P = 6(2) + 5(2)$
$12 + 10$
22 units

$A = 6(5)$
30 un^2

2 Graph the points on the plane and connect them to form a polygon.

x	y
−2	5
−2	−3
3	−3
5	2



(a) What polygon did you form? **Justify your answer.**

Quadrilateral
4 sides

(b) Determine the area of the polygon.

$\triangle = \frac{1}{2}(7)(3)$
10.5

$\triangle\triangle = \frac{1}{2} \cdot 5(5+7)$
$\frac{1}{2} \cdot 5 \cdot 12$
30

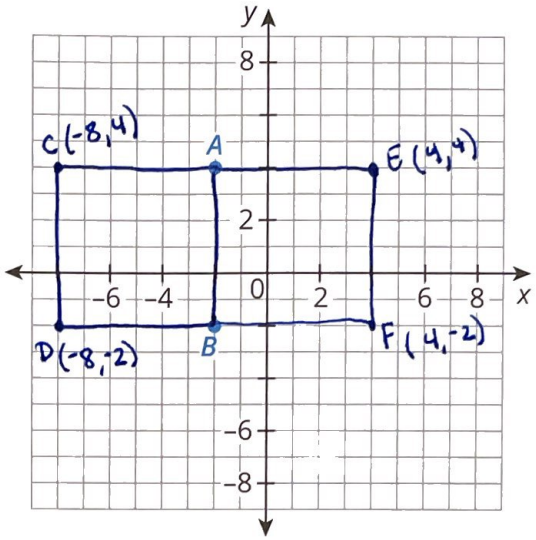
$10.5 + 30$
40.5 un^2

Completing Polygons on the Plane

HABITS OF MIND
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Recall that a parallelogram is a quadrilateral in which both pairs of opposite sides are parallel.

1 Look at points A (−2, 4) and B (−2, −2) on the coordinate plane.



(a) Plot and label points C, D, E, and F so that you form squares $ABCD$ and $ABEF$.

(b) Determine the area of each square.

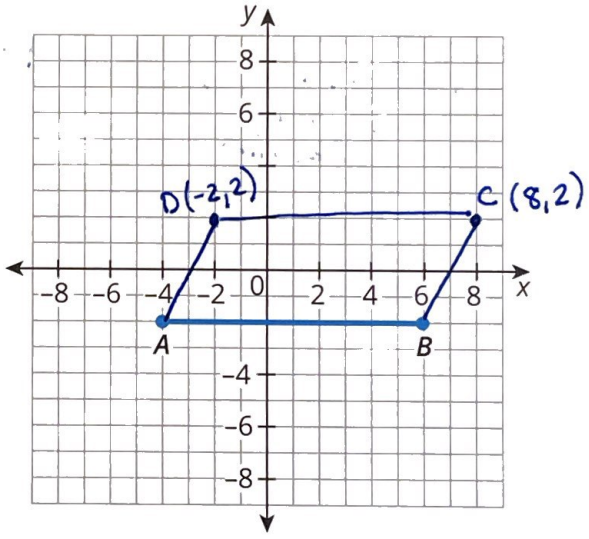
$A = 6(6)$

$36 un^2$

(c) Compare your squares with your classmates' squares. Are all the squares the same or different? How do you know that you drew the squares correctly?

Yes.
Squares have equal sides and right angles.

2 Look at line segment AB on the coordinate plane.



(a) Plot and label points C and D to form parallelogram $ABCD$ with a height of 4 units.

(b) Determine the area of your parallelogram.

$A = 10(4)$

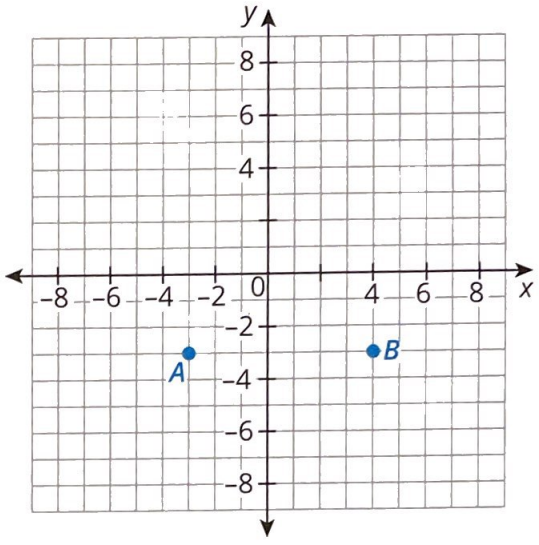
$40 un^2$

(c) Compare your parallelogram with your classmates' parallelograms. Are all the parallelograms the same or different? **How do you know that you drew the parallelograms correctly?**

Not all the same. C & D could have been to the left of A & B

If it has a height of 4 and a base of 10 it is correct

3 On the coordinate plane, the points A $(-3, -3)$ and B $(4, -3)$ form segment AB.



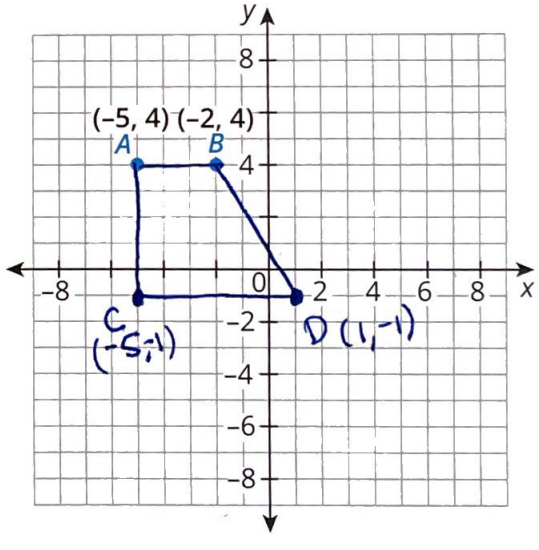
(a) Plot and label point C so that you form a right triangle.

(b) Plot and label point D so that you form an acute triangle.

(c) Determine the areas of your triangles.

(d) Compare your triangles with your classmates' triangles. Are all the triangles the same or different? **How do you know that you drew the triangles correctly?**

4 On the coordinate plane, points A and B form segment AB.



(a) Plot and label two points to form trapezoid $ABCD$ with a height of 5 units. Your trapezoid should cross into at least 3 quadrants.

(b) Determine the area of your trapezoid.

$A = \frac{1}{2} \cdot 5(3+6)$

$\frac{1}{2} \cdot 5 \cdot 9$

22.5 un^2

(c) Compare your trapezoid with your classmates' trapezoids. Are all the trapezoids the same or different? **How do you know that you drew the trapezoids correctly?**

Not all the same.

If it has a height of 5 and two parallel sides it is correct