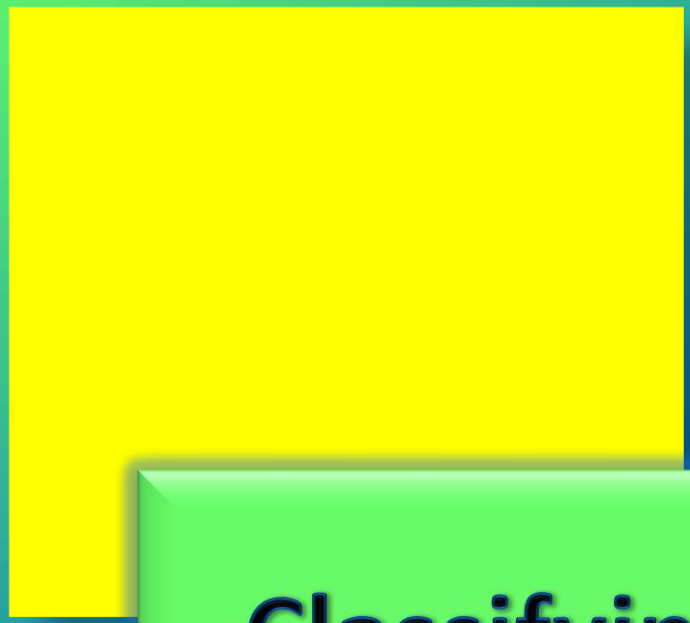
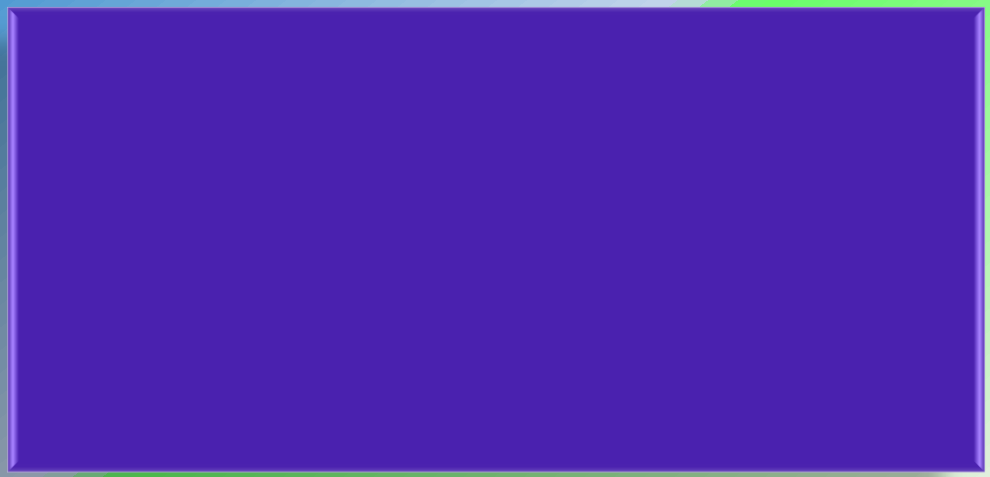
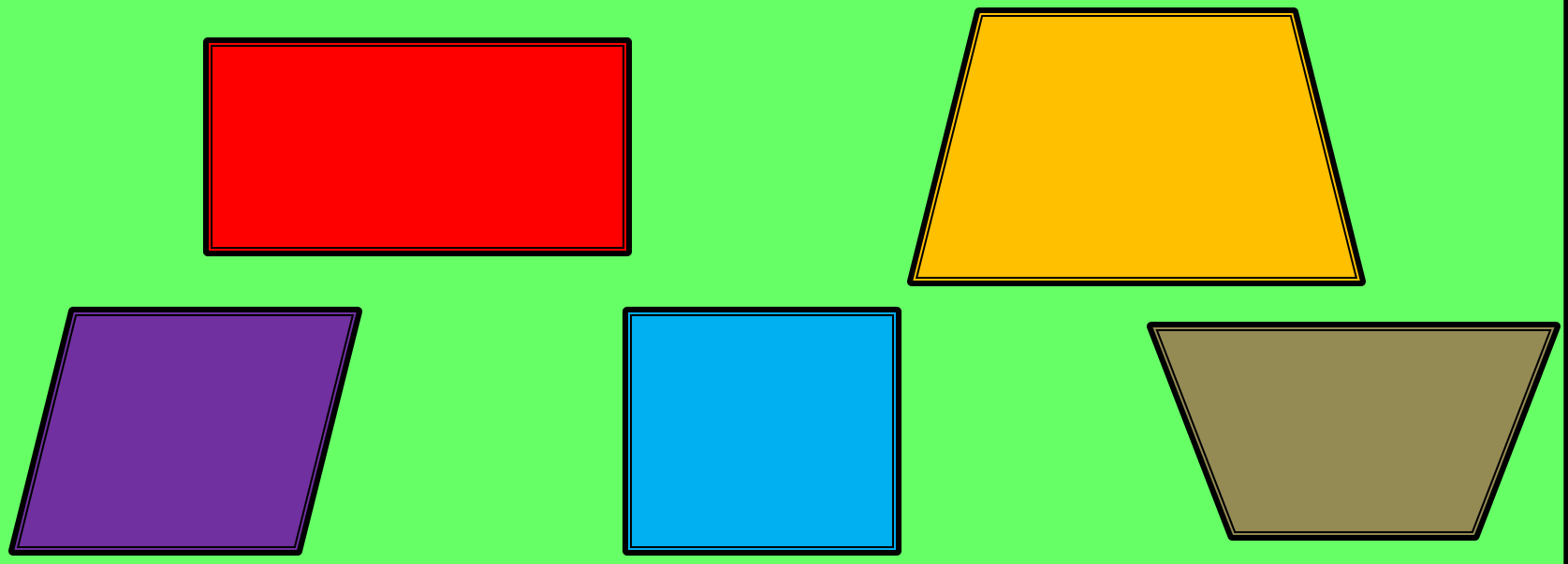


Classifying Quadrilaterals



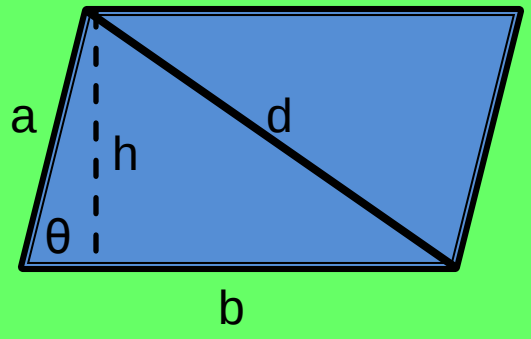
What is a quadrilateral?

A quadrilateral is a closed 2 dimensional figure with 4 sides that are line segments.

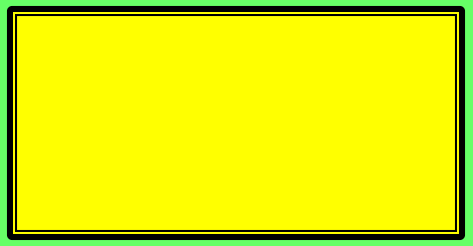


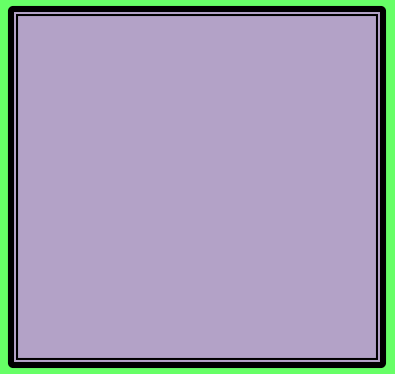
What is a parallelogram?

- Quadrilateral – 4 sides
- Opposite sides congruent
- Opposite sides parallel



$d^2=a^2+b^2-2abcos\theta$





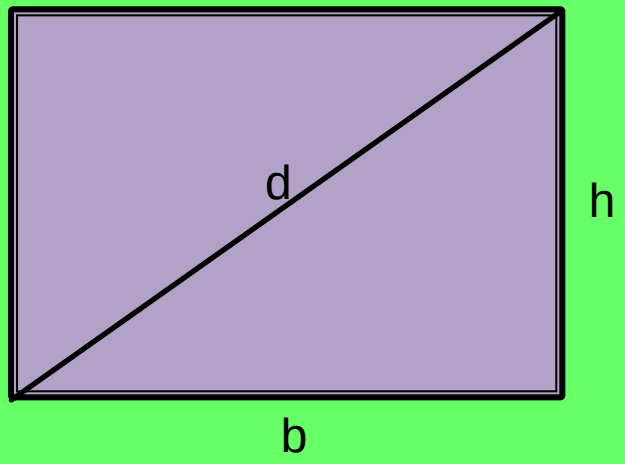
Perimeter & Area

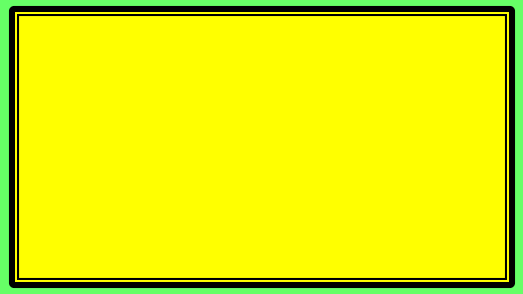
$P=2a+2b$

$A=bh=absin\ \theta$

What is a rectangle?

- Quadrilateral- 4 sides
- Parallelogram- opposite sides parallel
- Four right angles.



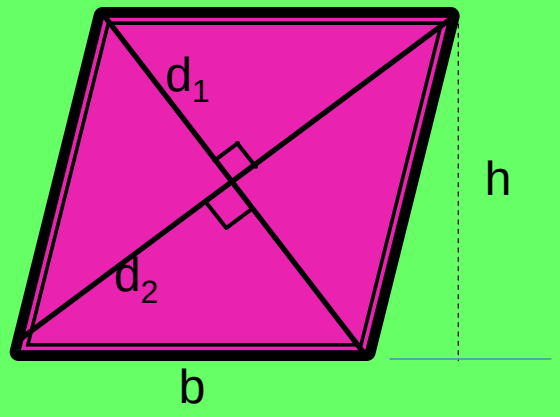


Perimeter & Area

P=2b+2h
A=bh

What is a rhombus?

- Quadrilateral- 4 sides
- Parallelogram- opposite sides parallel
- Four congruent sides.



Diagonal

$$\sqrt{(\frac{d1}{2})^2 + (\frac{d2}{2})^2}$$

$$\theta = 2\tan^{-1}(\frac{d_1}{d_2})$$

Perimeter & Area

P=4b

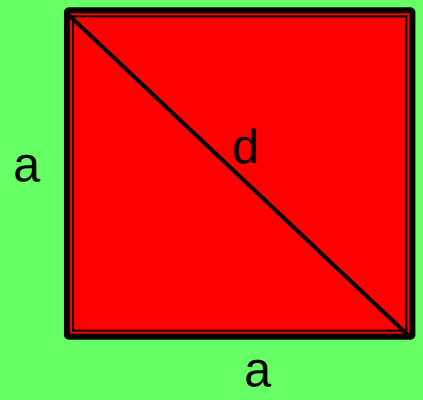
$A=(1/2)d_1d_2=bh$

What is a square?

- Quadrilateral – 4 sides
- Parallelogram- opposite sides parallel
- Rectangle- 4 right angles
- Rhombus- 4 sides congruent

Diagonal

$$d = a\sqrt{2}$$



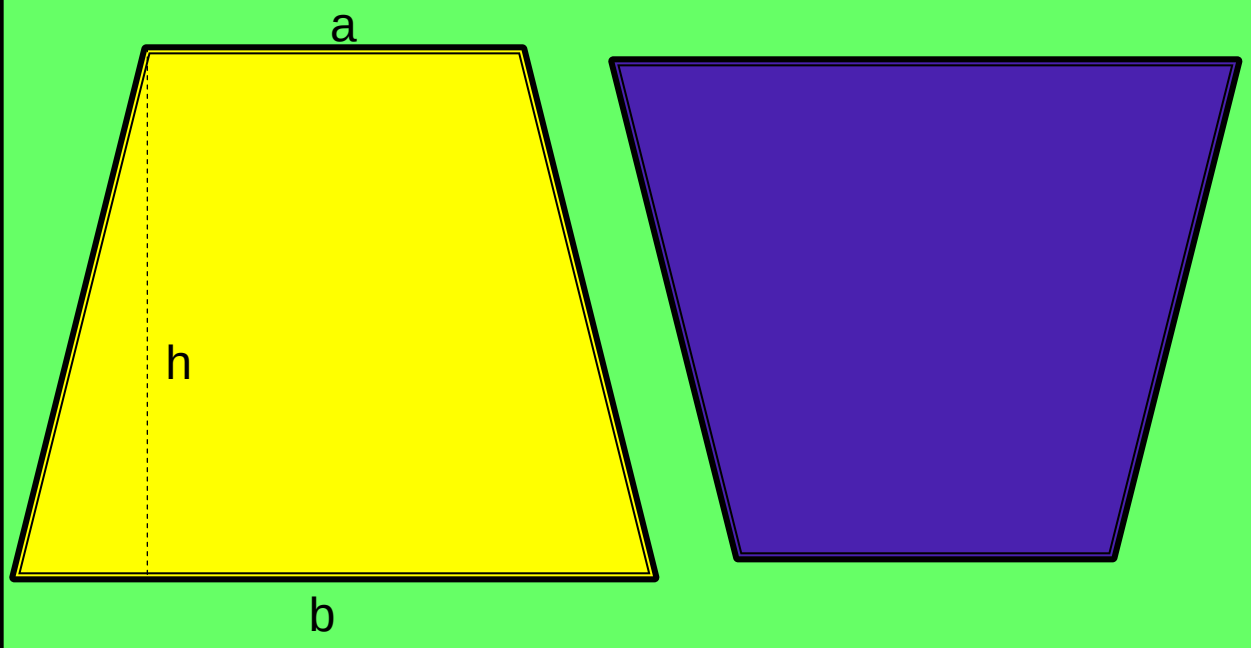
Perimeter & Area

$P=4a$

$A=a^2$

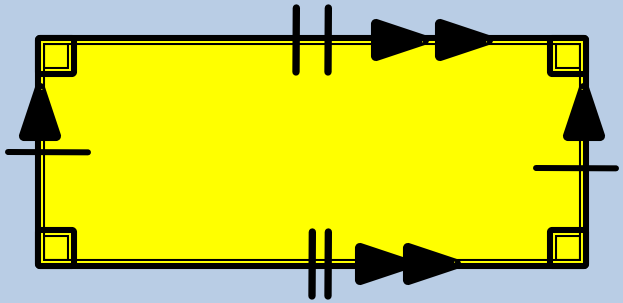
What is a trapezoid?

- Quadrilateral – 4 sides
- Exactly one pair of parallel sides



$$A = \frac{1}{2}(a+b)h$$

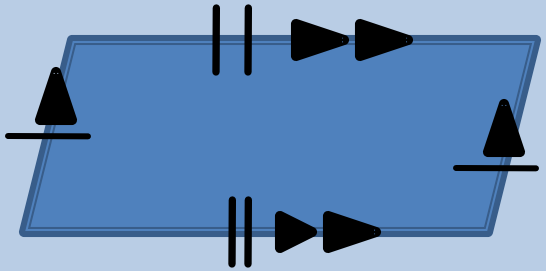
What are all of the names for this polygon?



- ❑ Quadrilateral
- ❑ Parallelogram
- ❑ Rectangle

Which name best describes the shape?

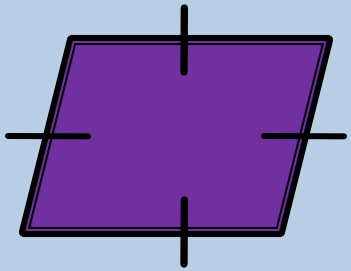
What are all of the names for this polygon?



- ❑ Quadrilateral
- ❑ Parallelogram

Which name best describes the shape?

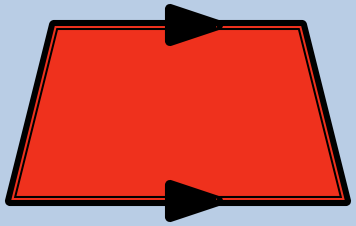
What are all of the names for this polygon?



- ❑ Quadrilateral
- ❑ Parallelogram
- ❑ Rhombus

Which name best describes the shape?

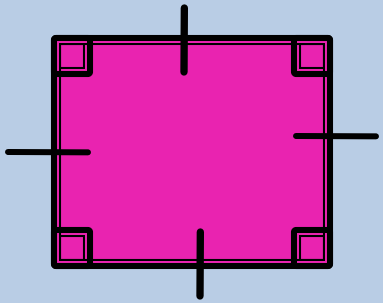
What are all of the names for this polygon?



- ❑ Quadrilateral
- ❑ Trapezoid

Which name best describes the shape?

What are all of the names for this polygon?



- ❑ Quadrilateral
- ❑ Parallelogram
- ❑ Square
- ❑ Rhombus
- ❑ Rectangle

Which name best describes the shape?

Exercises:

1. The diagonal of a rectangle is 25 meters long and makes an angle of 36^0 with one side of the rectangle. Find the area and the perimeter of the rectangle.

2. A piece of wire of length 52 cm is cut into two parts. Each part is then bent to form a square. It is found that the combined area of the two squares is $109\ m^2$. Find the sides of the two squares.

Exercises:

3. A certain city is in the form of parallelogram. Two of its sides measure 32 ft and 41 ft. If the area of the land in the block is 656 ft^2, what is the length of its diagonal?

4. A piece of wire is shaped to enclose an equilateral triangle whose area is 16sqrt(3) cm^2. It is then reshaped to enclose a rectangle whose length is 9 cm. Find the area of the rectangle.

Exercises:

5. A rhombus has diagonals of 32 and 20 inches. Find the angle opposite the longer diagonal. Also, determine its area.

6. The trapezoid has an area of 200 m^2 and an altitude of 4 m. Its two bases have a ratio of 4:5. What are the length of the bases in m? What is the perimeter of the trapezoid?