

Area of a rectangle
is: a) Base times Height
b) Length times Width

* the answer is always in
square units, written:

Example:

2 in.

4 in.

1	2	3	4
5	6	7	8

$$2 \times 4 = 8 \text{ square inches}$$

or

$$8 \text{ in.}^2$$

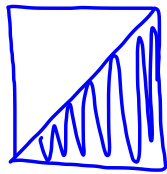
If your rectangle must have an area of 36 in^2 , then you need to factor 36:

Factors of 36

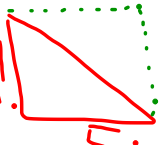
1)	1	x	36	$\overset{36}{\rule{1.5cm}{0.4pt}}$
2)	2	x	18	$\overset{18}{\rule{1.5cm}{0.4pt}}$
3)	4	x	9	$\overset{9}{\rule{1.5cm}{0.4pt}}$
4)	3	x	12	$\overset{12}{\rule{1.5cm}{0.4pt}}$
5)	6	x	6	$\overset{6}{\rule{1.5cm}{0.4pt}}$

* each of these 5 factor sets will create a rectangle with an area of 36 in^2 .

Area of a triangle



* notice how splitting the square in 2; creates 2 triangles, each with an area of half of the rectangle it divides in 2.


Example:  area of \triangle is
area of rectangle, 4×5 divided
by 2

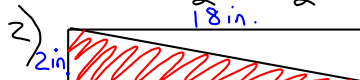
$$\frac{4 \times 5}{2} = \frac{20}{2} = 10 \text{ in}^2 \quad \text{or} \quad \frac{BH}{2} = \frac{LW}{2}$$

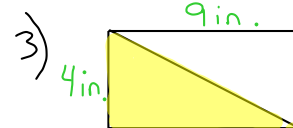
Find a triangle
with an area of 18in^2

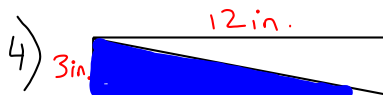
Step we need a rectangle
that has an area
double that of the
triangle, or 36in^2 .

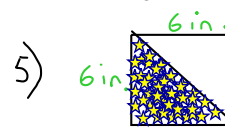
*from the previous
example, we know that we
have 5 factor sets for 36
 Δ with area of 18in^2 :

1) 
$$\frac{1 \times 36}{2} = \frac{36}{2} = 18\text{in}^2$$

2) 
$$\frac{2 \times 18}{2} = \frac{36}{2} = 18\text{in}^2$$

3) 
$$\frac{4 \times 9}{2} = \frac{36}{2} = 18\text{in}^2$$

4) 
$$\frac{3 \times 12}{2} = \frac{36}{2} = 18\text{in}^2$$

5) 
$$\frac{6 \times 6}{2} = \frac{36}{2} = 18\text{in}^2$$

Use the graph paper on the next page, to draw a square, rectangle, right triangle, trapezoid, and pentagon with an area of 36 in^2 each


square



* little marks show that sides are =

→ all sides of this quadrilateral are equal.

• all angles of this regular polygon are 90° (right angles)

*  little square in corner means right angle

• the area of a square with a side with a whole number length, will be the square of that side



area is x^2

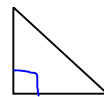
<u>Side</u>	<u>Area in units²</u>
1	$1^2 = 1$
2	$2^2 = 4$
3	$3^2 = 9$
4	$4^2 = 16$
5	$5^2 = 25$
6	$6^2 = 36$

rectangle



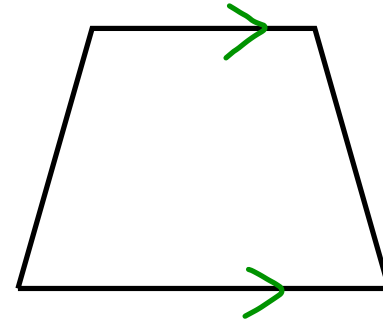
→ • all opposite sides are equal
• all angles are right
• all squares are rectangles; but not all rectangles are squares

right triangles



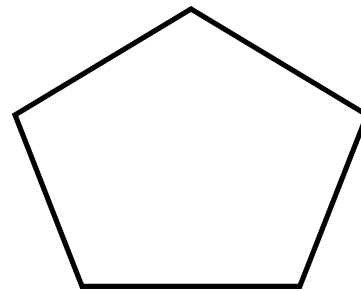
* 3 sided polygon with one right angle (90°)

trapezoid



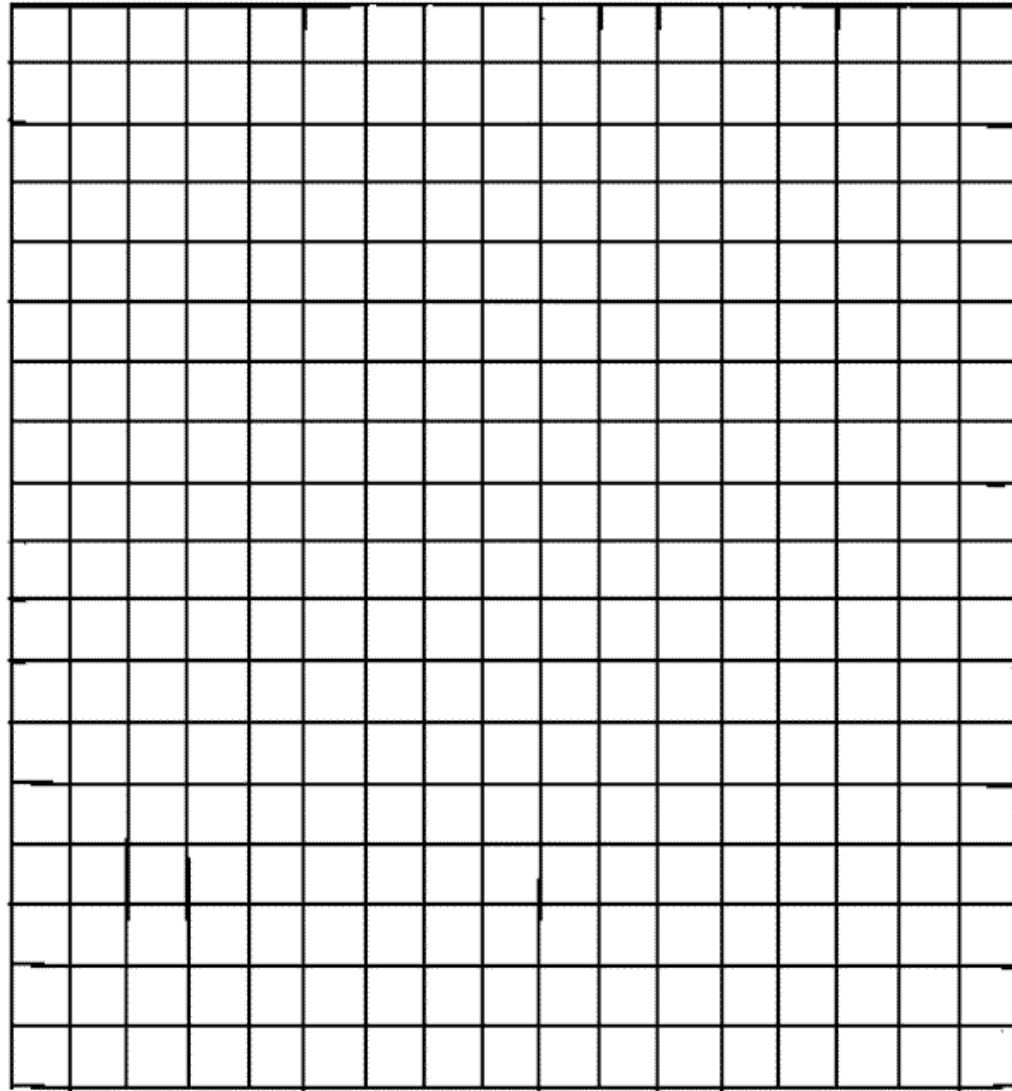
* quadrilateral
with only one set of
parallel lines. (arrows show
that the two horizontal lines
are parallel)

pentagon -



* 5 sided polygon

Now, try to create these
5 polygons with an area of
 36 in^2 . (Answers on next page)



these are only some solutions, except for the square

