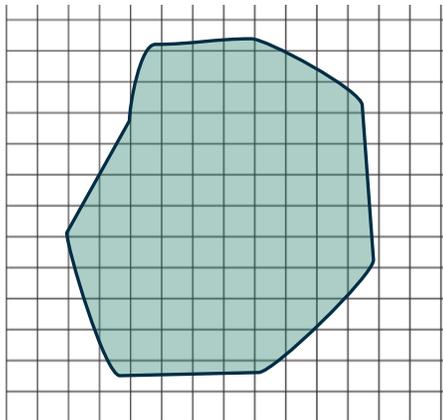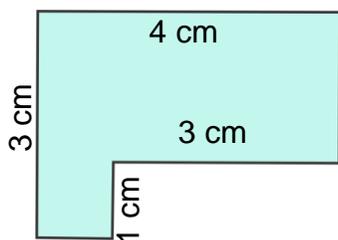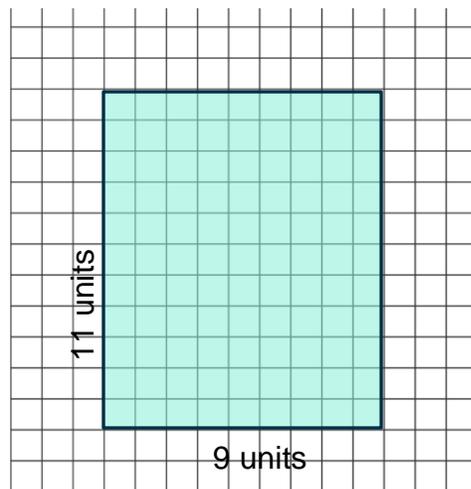Area of the shape is the measure of part of the plane, covered with the shape.

To find the area of the shape we need to find out how many area units (cm², m², mm²) are covered with the figure.
We can easily calculate the area of the rectangle:

$$S_r = a \cdot b$$

4 cm

3 cm

3 cm

1 cm

Find the area of the shape (all angles are right angles):

11 units

9 units

Area of a circle.

The ratio of circumference to the diameter is defined as π, the irrational number which can be rounded to 3.14.
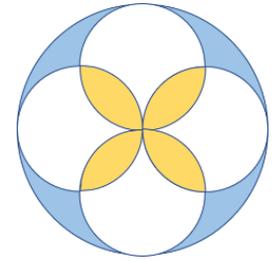
$$\frac{l}{2r} = \pi$$

The area of the circle is

$$S = \pi r^2$$

1. How the area of a square will change if we increase the length of the side 2 times? 3 times? $2\frac{1}{2}$ times? How will change the area of a triangle if each of its side will be increase 2 times? 3 times?

2. How the area of the circle will change if the radius is increased two times?
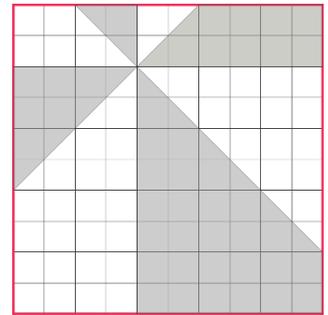
3. On the picture, the radius of the bigger circle is twice as big as the radius of the smaller circles.
   Prove that the area shaded blue is the same as the area shaded yellow.
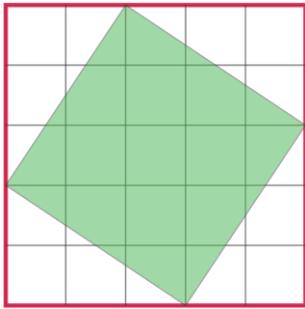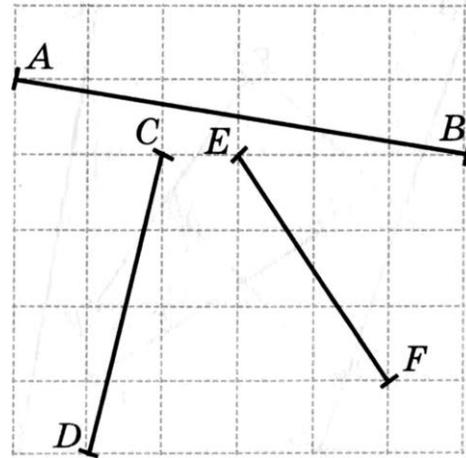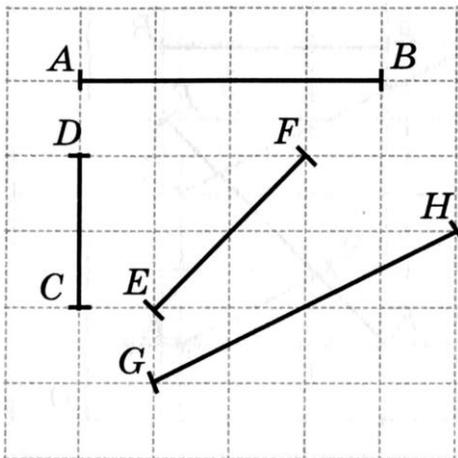
4. Prove that the area of the green square is 13 cm2 (assuming that the grid is 1 cm in each dimension).
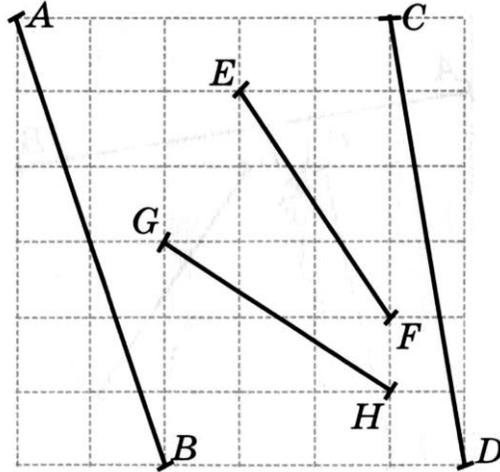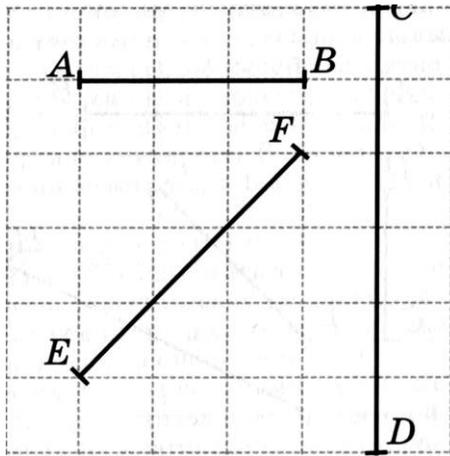
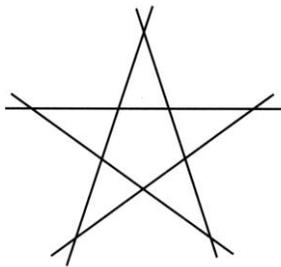5. Which part of the square is shaded?

6. Find the midpoints of the segments.

7. Find the points divided the segments into three equal parts.

8. How many lines are on the picture?   How many lines can be drawn through
   4 points? 5 points?

9. How many points of intersection can 3 straight lines have?

10. Draw 4 line so they have 4 pairwise intersections, 5 or 6.

11. How many points of intersection can two non-parallel line produce?

   Three non-parallel lines? Four? Five? 10? 100?

12. On a graph paper draw a square with the area equal to 2 cells, 4 cells, 5, 8, 9, 10, 16, 20, 35 cells.