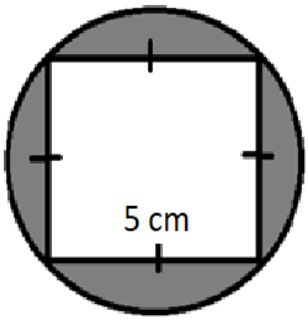
Examples of tasks in the mathematics entrance exam

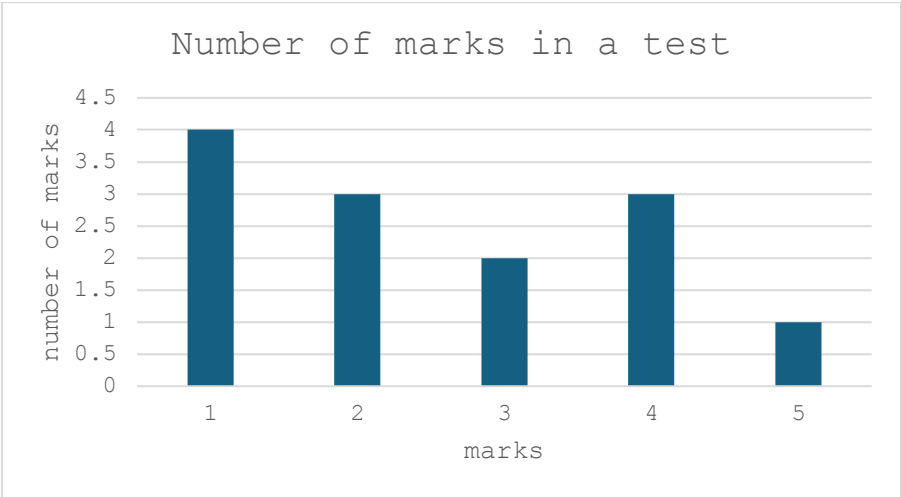
(You are allowed to use a calculator in exercises number 1, 2 and 3)

1) Sides of a rhombus are 4,6 cm long and one of the diagonals is 5,8 cm. Find the interior angles in the rhombus.

2) Find out area of shaded region:



3) Find out mean, median, mode and range of data given in the graph:



4) There are 30 boys and several girls in a class. 28 boys and all girls took part on a trip, what was 95% of all students. Find out the percentage of the girls in this class?

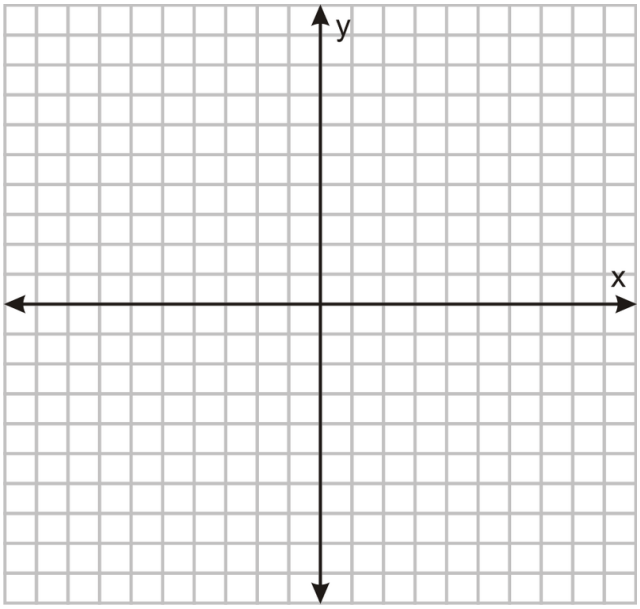
5) If you want to choose two out of your seven friends, how many different options do you have?

6) Find an intersection of two linear functions:
F: y=3x-2
G: y=-2x+1

7) In a group of 56 people, 25 like eating fish(F) and 29 like eating chips(C) and eight people like neither fish nor chips. How many like both fish and chips?
Draw a Venn diagram to show this information.

8) Calculate perimeter and area of circle if its chord is 6 cm long and distance between the chord and the center of circle is 4 cm.

9) Draw into Cartesian plane: Draw an enlargement (similarity) of the triangle ABC, A(-3,-1), B(1,-1), C(-3,2), scale factor is 2 and center of enlargement is point A.



10) Simplify and write correct conditions:

a) $\frac{5r^2+10rs+5s^2}{r^2-s^2}$

b) $\frac{(3x^5y^3z^5)}{(2x^2y^3z^2)^3}$