

### Analytic geometry – Circle

The tasks should be solved using iPad or the correct answers can be transferred to the given circle on an interactive board. The circle will be shown by a picture or a central equation. Enter the correct answers into the worksheet tables.

(In case you do not have any ICT available, the assignment can also be found in the attachment to the worksheet.)

For the pictures, it is true that a unit on the Cartesian plane axes equals 1 cm.

Information needed to solve the tasks:

- The central equation of a circle centered at  $S = [m; n]$  with radius  $r$ :  
 $(x - m)^2 + (y - n)^2 = r^2$
- Plotting of the given circle in the Cartesian plane
- Position of a point relative to the circle

**Task 1:** Match the correct equation and the length of a radius with the given circle in the picture.

Picture of the circle	Equation of the circle	Radius of the circle
1		
2		
3		
4		
5		
6		

**Task 2:** Match the given hyperbola with the correct picture and one of the points which lies on the circle.

Equation of the circle	Picture of the circle	Point lying on the circle
1		
2		
3		
4		
5		
6		

**Task 3:** Find the central equation to the given circle in the picture. In the picture there is shown one point lying on the circle. Then enter this central equation into the frame. Determine the position of points relative to the circle (an internal point of the circle, a point on the circle, external point of the circle).

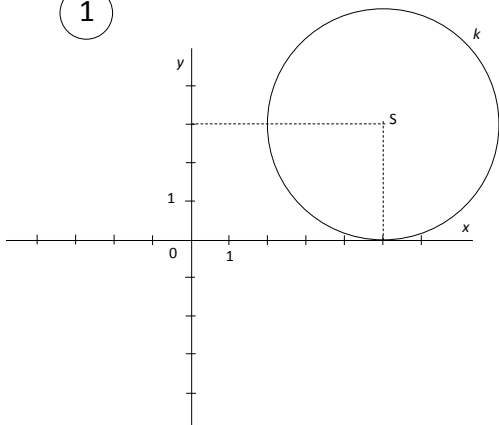
Central equation of the circle	
--------------------------------	--

Point	Position of the point
A	
B	
C	
D	
E	
F	

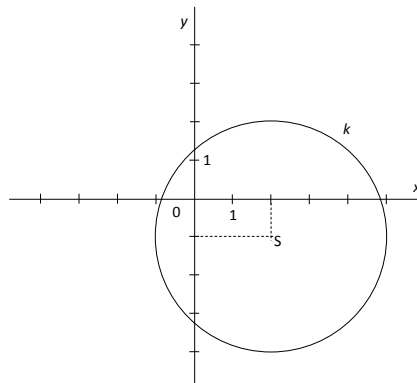
### ASSIGNMENT

**Task 1:** Match the correct equation and the length of a radius with the given circle in the picture.

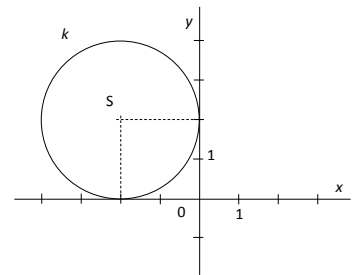
1



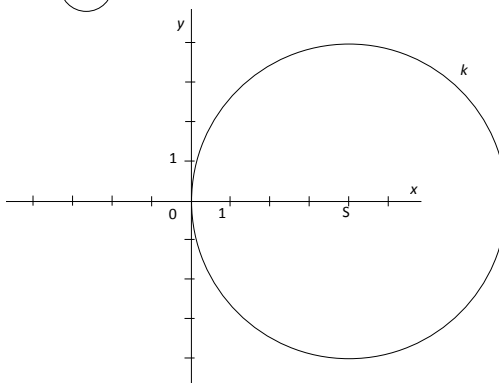
2



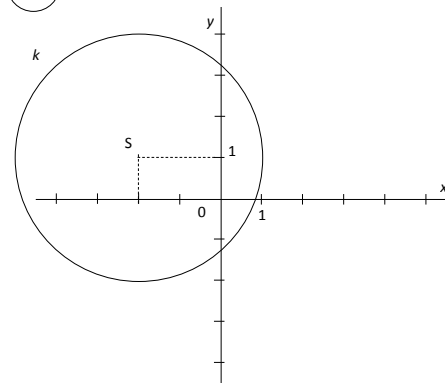
3



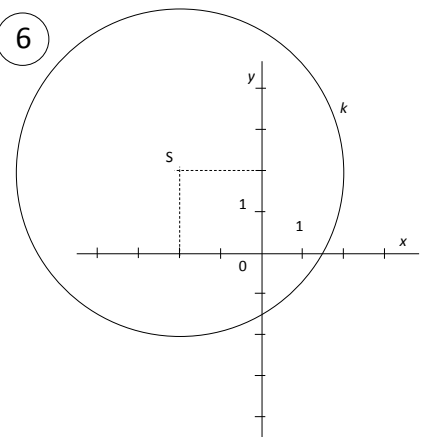
4



5



6



A:  $(x + 2)^2 + (y - 1)^2 = 16$

F:  $(x + 2)^2 + (y - 1)^2 = 9$

B:  $(x + 2)^2 + (y - 2)^2 = 4$

G:  $x^2 + (y - 4)^2 = 16$

C:  $(x - 5)^2 + (y - 3)^2 = 9$

H:  $(x - 5)^2 + (y - 3)^2 = 16$

D:  $(x - 2)^2 + (y + 1)^2 = 4$

I:  $(x - 2)^2 + (y + 1)^2 = 9$

E:  $(x - 4)^2 + y^2 = 16$

J:  $(x + 2)^2 + (y - 2)^2 = 16$

$r = 1\text{cm}$

$r = 2\text{cm}$

$r = 3\text{cm}$

$r = 4\text{cm}$

$r = 5\text{cm}$

ASSIGNMENT

**Task 2:** Match the given hyperbola with the correct picture and one of the points which lies on the circle.

1:  $(x + 3)^2 + (y - 2)^2 = 4$

4:  $(x + 2)^2 + (y + 3)^2 = 9$

2:  $(x - 3)^2 + (y + 2)^2 = 9$

5:  $(x - 1)^2 + (y + 4)^2 = 4$

3:  $(x + 2)^2 + (y + 3)^2 = 4$

6:  $(x - 3)^2 + (y + 2)^2 = 16$

U[1; -2]

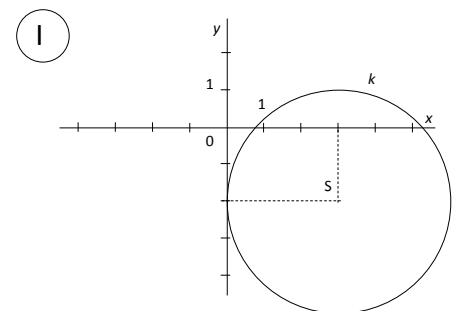
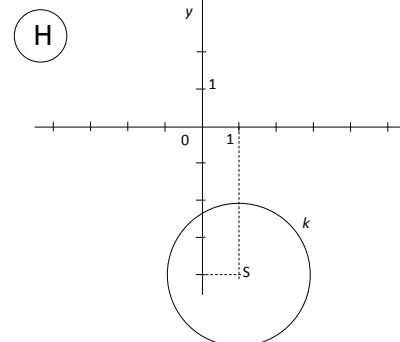
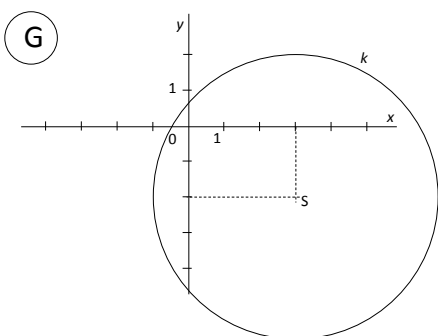
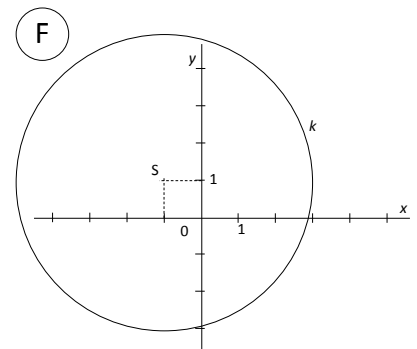
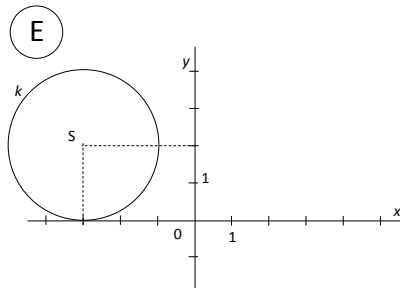
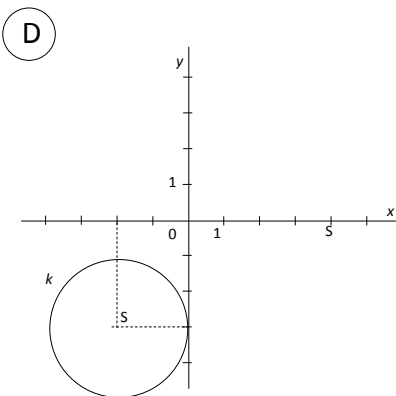
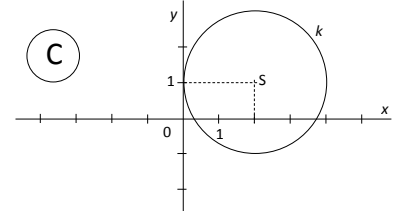
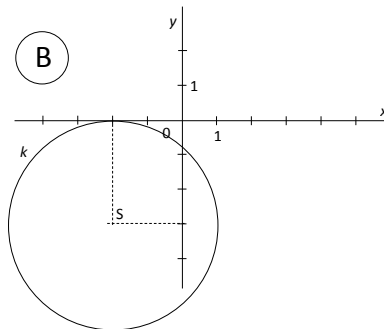
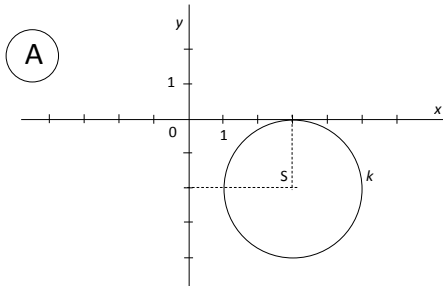
V[3; -6]

W[-3; 0]

X[-2; -1]

Y[1; -3]

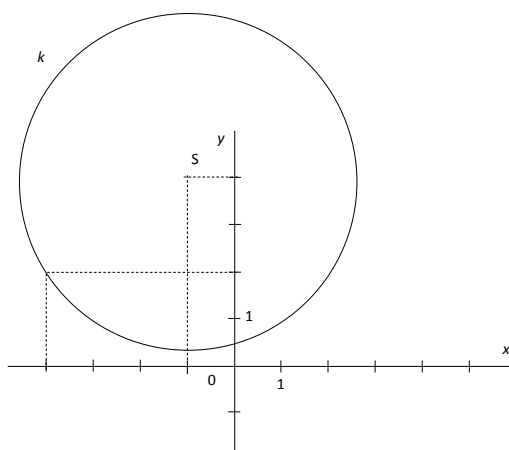
Z[3; 1]



### ASSIGNMENT

**Task 3:** Find the central equation to the given circle in the picture. In the picture there is shown one point lying on the circle. Then enter this central equation into the frame. Determine the position of points relative to the circle.

(Select from the options: an internal point of the circle, a point on the circle, external point of the circle.)



A[1; 2]

B[2; 2]

C[-4; 6]

D[-3; -2]

E[1; 4]

F[-5; 2]