

Kružnice II - řešení úloh a učebnice

144/5.1 napište rovnici kružnice s danými S a r

a)  $S[\sqrt{2}, 1]$   $r = \sqrt{3}$  ? ST?

$k: (x - \sqrt{2})^2 + (y - 1)^2 = 3$

144/5.2 zjistěte, zda jde o kružnici a určete S a r

c)  $x^2 + y^2 - 4x + 7 = 0$

$(x-2)^2 + y^2 = -3$   
→ není to kružnice

$x^2 - 4x + y^2 + 7 = 0$

$(x-2)^2 - 4 + y^2 + 7 = 0$

d)  $2x^2 + 2y^2 - 6y - 3 = 0$   $/:2$

$x^2 + y^2 - 3y - \frac{3}{2} = 0$

$x^2 + (y - \frac{3}{2})^2 = \frac{15}{4}$

$x^2 + (y - \frac{3}{2})^2 - \frac{9}{4} - \frac{3}{2} = 0$

$S[0; \frac{3}{2}]$   $r = \frac{\sqrt{15}}{2}$

$x^2 + (y - \frac{3}{2})^2 = \frac{9}{4} + \frac{3}{2}$

144/5.3 určete k kružnice se středem  $S[5; -1]$ , která prochází bodem  $B[1; 2]$ . ST je kružnice?

$a = ?$   $A[a; -5] \in k$

1. zp.  $(x - m)^2 + (y - n)^2 = r^2$

$(1 - 5)^2 + (2 + 1)^2 = r^2$

$16 + 9 = r^2$

$r = \sqrt{25} = 5$

2. zp.



$r = |SB| = |BS|$

$= \sqrt{(1-5)^2 + (2+1)^2} = 5$

ST:  $(x-5)^2 + (y+1)^2 = 25$

A:  $(a-5)^2 + (-5+1)^2 = 25$

$A_1[8; -5]$

$A_2[2; -5]$

$(a-5)^2 + 16 = 25$

$(a-5)^2 = 9$

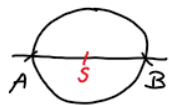
$|a-5| = 3$

$a_1 = 8$

$a_2 = 2$

145/5.4 napište rovnici kružnice, která

a) má body  $A[0; 7]$ ,  $B[4; 1]$  na krajních bodech svého průměru



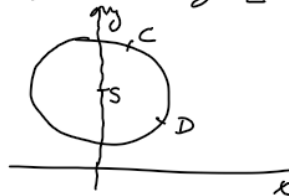
$S = ?$  ... střed AB

$S[2; 4]$

$r = |SA| = \sqrt{4 + 9} = \sqrt{13}$

ST:  $(x-2)^2 + (y-4)^2 = 13$

b) prochází body  $C[2; 5]$ ,  $D[3; 2]$  a  $S \in OX$



$S[0; \rho]$

C:  $(2-0)^2 + (5-\rho)^2 = r^2$

D:  $(3-0)^2 + (2-\rho)^2 = r^2$

$4 + (5-\rho)^2 = r^2$

$9 + (2-\rho)^2 = r^2$   $/( -1)$

$* -5 + 25 - 10\rho + \rho^2 - 4 + 4\rho - \rho^2 = 0$

$-6\rho = -16$

$\rho = \frac{16}{6} = \frac{8}{3}$

$S[0; \frac{8}{3}]$

$r = |CS| = \sqrt{4 + \frac{64}{9}} = \sqrt{\frac{85}{9}} = \frac{\sqrt{85}}{3}$

$k: x^2 + (y - \frac{8}{3})^2 = \frac{85}{9}$