2/3 2021

Tugas 2 mpm

1.) a.) Dik : TP(3, -5)
titik yg dilalui (0, -1)
Dit : Bntk baku : . ?
Bntk umum : . ?

Jawab :
Krn titik yg dilalui berhimpit dengan sb -X, maka r = |y| titik ~~yg dilalui~~ pusat
r = 5

Bentuk baku :
$(x-3)^2 + (y+5)^2 = 25$

Bentuk umum :
$x^2 - 6x + 9 + y^2 + 10y + 25 - 25 = 0$
$x^2 + y^2 - 6x + 10y + 9 = 0$

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b.) Dik : TP$(1, \frac{1}{2})$
titik yg dilalui $(-1, \frac{7}{2})$

Dit :
Bntk baku : . ?
Bntuk umum : . ?

Jawab :
$r^2 = (-1-1)^2 + (\frac{7}{2} - \frac{1}{2})^2$
$r^2 = (-3)^2 + (3)^2$
$r^2 = 18$

Bntk baku :
$(x-1)^2 + (y-\frac{1}{2})^2 = 18$

Bentuk umum
$x^2 - 2x + 1 + y^2 - y + \frac{1}{4} - 18 = 0$
$x^2 + y^2 - 2x - y - \frac{55}{4} = 0$
$4x^2 + 4y^2 - 16x - 4y - 55 = 0$

2.) a.) Dik : $L \equiv x^2 + y^2 - x + 3y \underbrace{- \frac{3}{2}}_{C} = 0$
Dit : TP : . ?
r = . . ?

$x^2 - x = (x - \frac{1}{2})^2$ (a^2)
$x^2 - x = x^2 - x + \frac{1}{4}$

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

$R^2 - a^2 - b^2 = -C$
$R^2 - \frac{1}{4} - \frac{9}{4} = \frac{3}{2}$
$R^2 - \frac{5}{2} = \frac{3}{2}$
$2R^2 - 5 = 3$
$2R^2 = 8$
$R^2 = 4$
$R = 2$ //

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2.) b.) Dik: $3x^2+3y^2-3x+9y-\frac{9}{2}=0$

$A=-3 \rightarrow a=\frac{3}{2}$ TP$(\frac{3}{2}, -\frac{9}{2})$
$B=9 \rightarrow b=-\frac{9}{2}$
$C=-\frac{9}{2}$

$R^2=a^2+b^2-C$
$=\frac{9}{4}+\frac{81}{4}-\frac{18}{4}=\frac{72}{4}=18$

$r=\pm\sqrt{18}$

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3.) Dik: $L\equiv x^2+y^2+4x+8y+C=0$ Dit: $C=?$
$r=5$ $A=4 \rightarrow a=-2$ TP$(-2,-4)$
$B=8 \rightarrow b=-4$

$r^2=a^2+b^2-C$
$25=4+16-C$
$C=-5$

4.) Dik: $L\equiv 2x^2+2y^2+Ax-2y-7=0$ Dit: $A=?$
$r=4$
$B=-2 \rightarrow b=1$
$C=-7$

Jawab:
$\boxed{A=-2a}$

$r^2=a^2+b^2-C$
$16=a^2+1+7$
$16=a^2+8$
$8=a^2$
$\sqrt{8}=a$

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$A=-2\sqrt{8}$