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Opgave 233

$$a: (x + 3)^2 + (y + 1)^2 = 16$$

- a) Find punkter der skrærrer med periferien hvis x er -5

$$P_0(-5,0)$$

$$(-5 + 3)^2 + (y + 1)^2 = 16$$

$$4 + y^2 + 2y + 1 = 16 \quad \text{Gange parentes}$$

$$4 + y^2 + 2y + 1 - 16 = 0 \quad \text{Flyt 16}$$

$$y^2 + 2y - 11 = 0 \quad \text{Reducer}$$

$$a = 1$$

$$b = 2$$

$$c = -11$$

$$y_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$y_{1,2} = \frac{-2 \pm \sqrt{2^2 - 4 \cdot 1 \cdot (-11)}}{2 \cdot 1}$$

$$y_1 = (-2 \cdot \sqrt{3}) - 1$$

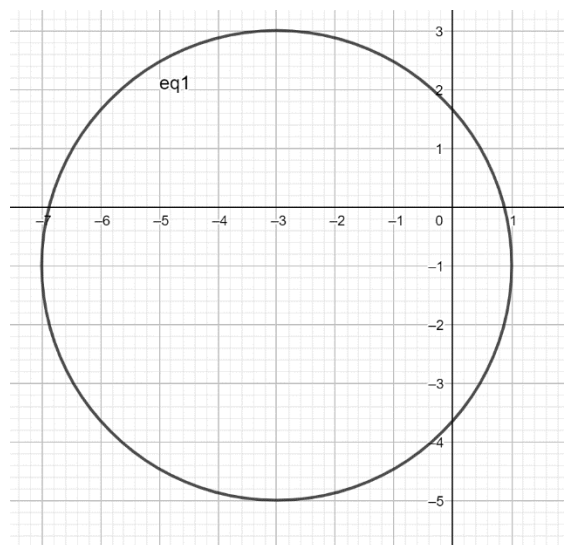
$$y_1 = -4,464102$$

$$P_1(-5, -4.45)$$

$$y_2 = 2 \cdot \sqrt{3} - 1$$

$$y_2 = 2,464102$$

$$P_2(-5, 2.46)$$



- b) Find skærings punkter på akserne

$$P_x(0, ?)$$

$$P_y(?, 0)$$

$$(x + 3)^2 + (y + 1)^2 = 16$$

Løser med hensyn til P_x

$$(0 + 3)^2 + (y + 1)^2 = 16$$

$$9 + y^2 + 2y + 1 = 16$$

$$9 + y^2 + 2y + 1 - 16 = 0$$

$$y^2 + 2y - 6 = 0$$

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$$a = 1$$

$$b = 2$$

$$c = -6$$

$$y_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$y_{1,2} = \frac{-2 \pm \sqrt{2^2 - 4 \cdot 1 \cdot (-6)}}{2 \cdot 1}$$

$$y_1 = \sqrt{7} - 1$$

$$y_1 = 1,645751$$

$$P_{x1}(0, 1.6)$$

$$y_2 = (-\sqrt{7}) - 1$$

$$y_2 = -3,645751$$

$$P_{x2}(0, -3.6)$$

Løser med hensyn til P_y

$$(x + 3)^2 + (0 + 1)^2 = 16$$

$$x^2 + 6x + 9 + 1 = 16$$

$$x^2 + 6x + 9 + 1 - 16 = 0$$

$$x^2 + 6x - 6 = 0$$

$$a = 1$$

$$b = 6$$

$$c = -6$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x_{1,2} = \frac{-6 \pm \sqrt{6^2 - 4 \cdot 1 \cdot (-6)}}{2 \cdot 1}$$

$$x_1 = \sqrt{15} - 3$$

$$x_1 = 0,8729833$$

$$P_{y1}(0.87, 0)$$

$$x_2 = (-\sqrt{15}) - 3$$

$$x_2 = -6,872983$$

$$P_{y2}(-6.87, 0)$$

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