

Zadatak 20. Kako glasi jednačba kružnice koja prolazi točkama $A(-5, 0)$, $B(0, 0)$ i $C(0, 3)$?

Rješenje. $A(-5, 0)$, $B(0, 0)$, $C(0, 3)$

$$(-5 - p)^2 + (0 - q)^2 = r^2$$

$$(0 - p)^2 + (0 - q)^2 = r^2$$

$$(0 - p)^2 + (3 - q)^2 = r^2$$

$$25 + 10p + p^2 + q^2 = r^2$$

$$p^2 + q^2 = r^2$$

$$p^2 + q^2 - 6q + 9 = r^2$$

$$p^2 + q^2 + 10p + 25 = p^2 + q^2$$

$$p^2 + q^2 + 9 - 6q = p^2 + q^2$$

$$10p = -25 \implies p = -\frac{5}{2}$$

$$-6q = -9 \implies q = \frac{3}{2}$$

$$r^2 = \frac{25}{4} + \frac{9}{4} = \frac{17}{2}$$

$$\left(x + \frac{5}{2}\right)^2 + \left(y - \frac{3}{2}\right)^2 = \frac{17}{2}.$$