Zadatak 47. Odredi jednadžbu kružnice opisane trokutu kojem stranice leže na pravcima $2x+y+1=0$, $x+3y-2=0$, $x-7y+38=0$.

Rješenje.

$$\begin{aligned} x+3y-2&=0\\ x-7y+38&=0\\ \hline 10y-40&=0\\ y&=4\\ x&=-10 \end{aligned}$$

$A(-10,4)$

$$\begin{aligned} 2x+y+1&=0\\ x-7y+38&=0\\ \hline 14y-76+y+1&=0\\ 15y&=75\\ y&=5\\ x&=-3 \end{aligned}$$

$B(-3,5)$

$$\begin{aligned} 2x+y+1&=0\\ x+3y-2&=0\\ \hline 4-6y+y+1&=0\\ 5-5y&=0\\ y&=1\\ x&=-1 \end{aligned}$$

$C(-1,1)$

$$
\begin{aligned}
(-10-p)^2+(4-q)^2&=r^2\\
(-3-p)^2+(5-q)^2&=r^2\\
(-1-p)^2+(1-q)^2&=r^2\\
\hline
100+20p+p^2+16-8q+q^2&=r^2\\
9+6p+p^2+25-10q+q^2&=r^2\\
1+2p+p^2+1-2q+q^2&=r^2\\
\hline
p^2+q^2+20p-8q+116&=r^2\\
p^2+q^2+6p-10q+34&=r^2\\
p^2+q^2+2p-2q+2&=r^2\\
\hline
14p+2q+82&=0\\
4p-8q+32&=0\\
\hline
7p+q+41&=0\\
p-2q+8&=0 \implies p=2q-8\\
\hline
14q-56+q+41&=0\\
15q&=15\\
q&=1\\
p&=2-8=-6\\
36+1-12-2+2&=r^2\\
r^2&=25
\end{aligned}
$$

$$(x+6)^2+(y-1)^2=25\,.$$