

12.5, number 3: Find parametric equations for the line through the points $P = (-2, 0, 3)$ and $Q = (3, 5, -2)$.

Answer: If (x, y, z) is on the line, then

$$\overrightarrow{P(x, y, z)} = t \overrightarrow{PQ}$$

for some t . There is a picture on the next page.

So,

$$(x + 2)\vec{i} + (y - 0)\vec{j} + (z - 3)\vec{k} = t(5\vec{i} + 5\vec{j} - 5\vec{k})$$

and

$$\begin{cases} x = 5t - 2 \\ y = 5t \\ z = -5t + 3 \end{cases}$$

Picture for 12.5 number 3.

