

Exercise 2.1.65. Find the domain of $P(t) = \frac{\sqrt{t-4}}{3t-21}$.

Solution

We cannot take square roots of negatives nor divide by 0. Since we take a square root of $t-4$, we need $t-4 \geq 0$ or $t \geq 4$. Since we divide by $3t-21$ must avoid $3t-21=0$ or $3t=21$ or $t=7$. So the domain is all real t such that $t \geq 4$ and $t \neq 7$. In interval notation, the domain is

$$t \in [4, 7) \cup (7, \infty). \quad \square$$