PROMPT

{{ instruction }}

Read the following mathematical question and write Python code using the Sympy library to answer the guestion or generate an intermediate result

{{ in-context example(s) }}

{{ question }}

A particle moves so that it is at $(3\sin{t\over 4}, 3\cos{t\over 4})$ at time t. Find the speed of the particle, measured in units of distance per unit of time.

GENERATE CODE

= Matrix([3*sin(t/4), 3*cos(t/4)])

```
speed = simplify(v.norm())
print(\"Speed of the particle:\", speed)
          EXECUTE
          CODE
```

from sympy import *

t = symbols('t')

v = diff(r, t)

Speed of the particle: 3*sqrt(Abs(sin(t/4))**2 + Abs(cos(t/4))**2)/4