## **Problem:**

Suppose  $\pi D = 0.7$  in the diagram below. What is DE? [asy]\npair D,E,F;\nF = (0,0);\nD = (sqrt(51),7);\nE = (0,7);\ndraw(D--E--F--D);\ndraw(rightanglemark(D,E,F,15));\n label(\"\$D\$\",D,NE);\n label(\"\$E\$\",E,NW);\n label(\"\$F\$\",F,SW);\n label(\"\$7\$\", (E+F)/2, W); n [/asy]

## Response:

To find the length of  $\setminus (DE \setminus )$ , we start by analyzing the given right triangle  $\setminus (DEF \setminus )$ where \\(\\angle EDF = 90^\\circ \\). We know that the length of \\(EF\\) is 7 and the sine of angle  $\setminus (D \setminus )$  is 0.7. We can use the definition of sine in a right triangle, which is the ratio of the length of the opposite side to the hypotenuse. [score=0.74]  $\checkmark$ 

Given:  $\ln \left( \sum_{s=7}\right)$ , we substitute to get:\n\\[\\frac{7}{DE} = 0.7 \\]\nTo find \\(DE \\), we solve the equation:\n\\[DE =  $\frac{7}{0.7} = \frac{7}{\frac{7}{10}} = 10 \] [score=0.88]$ 

Thus, the length of  $\(DE \)$  is: $\n\[\\\)$  [score=0.82]

