## **Problem:**

Suppose  $\$  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); \nlabel(\"\$F\$\",F,SW); \nlabel(\"\$7\$\", (E+F)/2,W); \n[/asy]

## Response:

To solve for  $\(DE\)$  given that  $\(\)$  and the length  $\(EF = 7\)$ , we can follow these steps: [score=0.99]

- 1. \*\*Identify the given information and the right triangle:\*\*\n We are given \\(\\sin D = 0.7\\).\n \\(\\\\\) is a right angle.\n \\(\(EF = 7 \\). [score=0.99]
- 2. \*\*Understand the trigonometric relationship:\*\*\n In a right triangle, \\(\\sin\\) of an angle is the ratio of the length of the opposite side to the hypotenuse.\n Here, \\(\\sin D = \\frac{EF}{DE}\\). [score=0.90]
- 3. \*\*Set up the equation using the given \\(\\sin D\\):\*\*\n \\[\n \\sin D = \\frac{EF}{DE}\n \\]\n Substituting the given values:\n \\[\n 0.7 = \\frac{7}{DE}\n \\] [score=0.97]
- 4. \*\*Solve for \\(DE\\):\*\*\n To isolate \\(DE\\), multiply both sides of the equation by \\(DE\\):\n \\[\n 0.7 \\cdot DE = 7\n \\]\n Divide both sides by 0.7:\n \\[\n DE = \\frac{7}{0.7}\n \\]\n Simplify the division:\n \\[\n DE = 10\n \\] [score=0.99]

Therefore, the length of \\( DE \\) is \\(\\boxed{10}\\). [score=0.99]