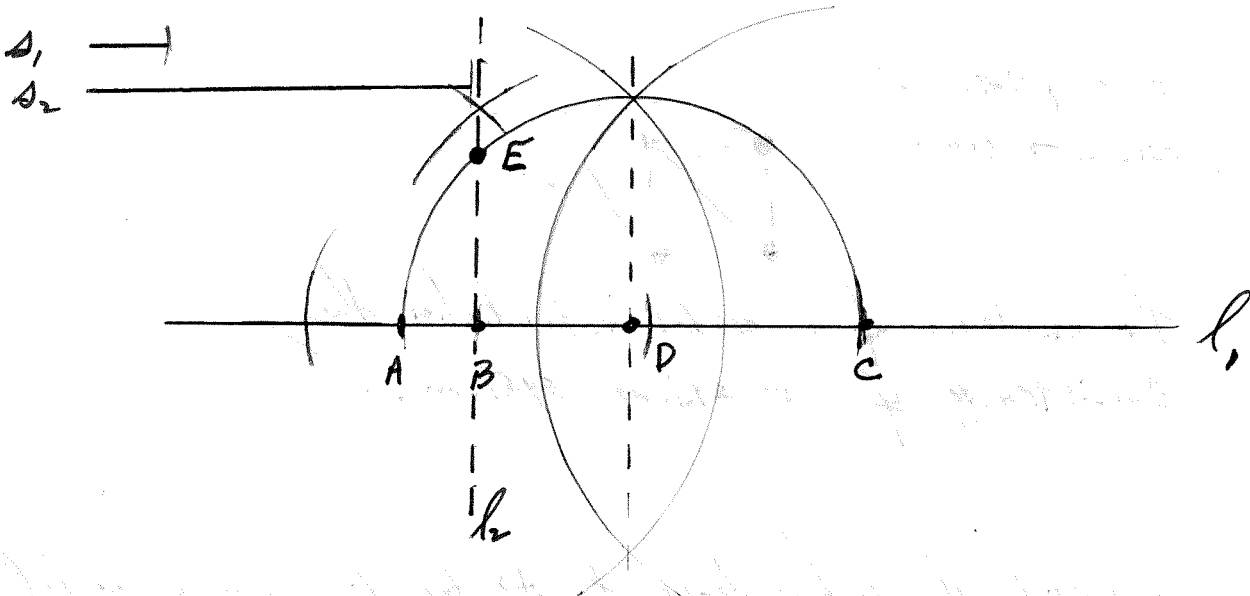


1. (5 points) Show how to use a compass and straight edge to construct a segment of length $\sqrt{5}$. Segments of lengths 1 cm and 5 cm are provided for your convenience. Describe the sequence of steps you follow in constructing your segment of length $\sqrt{5}$. Finally use your centimeter ruler to approximate $\sqrt{5}$ to one decimal place.



Construct any line l_1 . Choose any point A on l_1 .

Construct on l_1 , $\overline{AB} \cong s_1$,

Construct on l_1 , $\overline{BC} \cong s_2$

Construct the midpoint D of \overline{AC}

Construct a semi-circle with diameter \overline{AC}

Construct $l_2 \perp l_1$ at B .

Construct intersection of l_2 and the semi-circle, call it E .

\overline{BE} has length $\sqrt{5}$ (cm).

By measurement $\sqrt{5} \approx 2.3$