

PROBLEM XLIX.

To Find a Third Proportional to Two Given Lines, A and B .—(Figs. 59 and 60.)

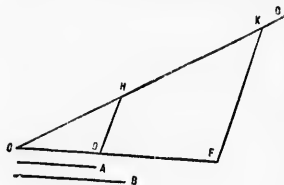


FIG. 58.

First.—Let it be required to find a third proportional which will be greater than A or B .—(Fig. 59.)

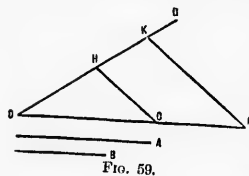


FIG. 59.

Second.—Let it be required to find a third proportional which will be less than A or B .—(Fig. 60.)

Draw any line, CF , making CD equal to A and DF equal to B . From C draw a line, CG , of indefinite length, forming any angle with CF , and on it measure CH equal to B . Join HD . From F draw a line parallel to HD (problem vii.) to meet CG in K . Then HK will be the proportional required, that is, $CD : CH :: CH : HK$. (Euclid vi. 11.)

EXERCISES.

94. Draw two lines $\frac{1}{2}$ " and $\frac{3}{4}$ " long respectively and find a third proportional which will be greater than either.
95. Draw two lines bearing the ratio of 4 and 5 and find a third proportional less than either.
96. Find a third proportional (greater) to two lines bearing the ratio of 3 and 5.
97. Find a third proportional (less) to two lines $1\frac{1}{4}$ " and $1\frac{1}{2}$ " long respectively.