Relationship $\frac{a}{40} = \tan 36°52'$

From tables giving the values of trigonometric functions (see the Mathematics Dictionary, D. Van Nostrand Co., Appendix 1) he finds $\tan 36°52' = .75$. Whence, $\frac{a}{40} = .75$ and $a = 40 \times .75 = 30$ — P66 -(tables are now calculators)

A variety of problems involving right triangles can be solved ~~se~~ similarly. We cite few interesting examples. (Note — Four place tables were used in the solutions of these examples.) — 21/12/2018 (pg. 1)

I. How far up a wall will a 30-foot ladder (figure 12) reach if the foot makes an angle of 36° with the ground?

$\frac{a}{30} = \sin 36°$ $a = 30 \times 0.5878$ or 17.63 ft.

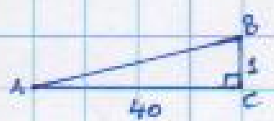
II. How long is the guy rope which supports a pole (figure 13), if the rope makes an angle of 56° with the ground and is fastened 50 feet from the foot of the pole?

Fig. 13

$\frac{50}{c} = \cos 56°$ $50 = c \times \cos 56°$

$c = \frac{50}{0.5592}$ whence $c = 89.4$ ft.

III. What is the inclination of a plane (figure 14) which rises 1 foot in a horizontal distance of 40 feet?

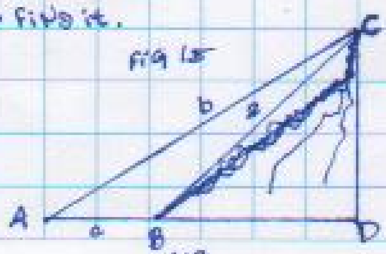


$\tan A = \frac{1}{40}$ or $.0250$

$A = 1°26'$

Unfortunately, the conditions of a problem not always lend themselves to a solution by means of a right triangle. Finding the height of a mountain, for example, may lead to a situation like that in figure 15 in which side c, and angles of elevation at A and B can be measured; obviously, some new method will have to be derived to find it. — P67

Fig 15



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