

- c. The slope angle for the north-south line, using either $\sin^{-1} 0.004$ or $\tan^{-1} 0.004$, is -0.23° (rounded).

The slope angle for the east-west line, using either $\sin^{-1} 0.00375$ or $\tan^{-1} 0.00375$, is 0.21° (rounded).

ACTIVITY 2: Calculating diagonal lengths of rectangles

Procedure

- a, b,
and c. Values given below are typical values.

Object	Length	Width	Diagonal (measured)
Classroom door	$78 \frac{13}{16}"$	$35 \frac{11}{16}"$	$86 \frac{1}{2}"$
Teacher's desk	$59 \frac{3}{4}"$	30"	$66 \frac{7}{8}"$
Chalkboard	$95 \frac{7}{8}"$	48"	$107 \frac{3}{16}"$
Classroom floor	30'	20'	36'

Calculations

- a and b.

Object	Calculated diagonal	Measured diagonal
Classroom door	86.52" (rounded)	$86 \frac{1}{2}"$
Teacher's desk	66.86" (rounded)	$66 \frac{7}{8}"$
Chalkboard	107.22" (rounded)	$107 \frac{3}{16}"$
Classroom floor	36.06' (rounded)	36'

- c. To calculate the room diagonal, the length and width are needed to calculate the floor diagonal and the ceiling height is needed to complete the second right triangle. See the drawing below. The length of the classroom is 30', the width is 20', and the ceiling height is 10'. The floor diagonal AB is obtained from the formula $(AB)^2 = 20^2 + 30^2$. This gives $AB = 36$ ft (rounded).

