Financial & Workplace 110

Week 1 Lesson 1

Goal: Be able to use the relationship between slope and angle of elevation to solve problems.

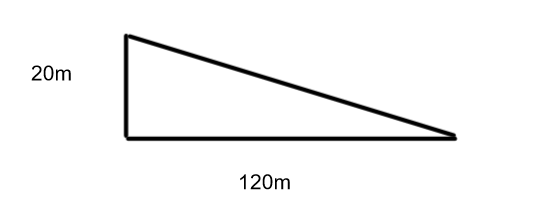
Slope Review:

Slope = or Slope = y2 – y1

X2 – x1

Example :

A road rises 20m for every 120m of horizontal distance. Determine the slope of the road.



1. Express the slope as a fraction.
2. Express the slope as a decimal.
3. Slope =

Slope =

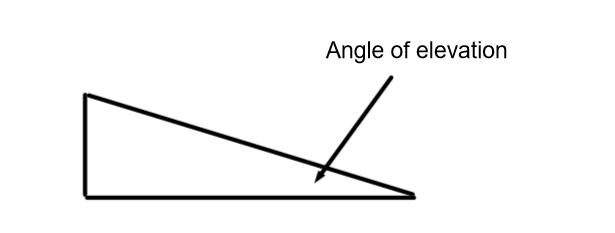
Slope = (Always reduce fractions)

1. = 0.1666.. = 0.167
2. 0.167= 0.167 x 100% = 16.7%

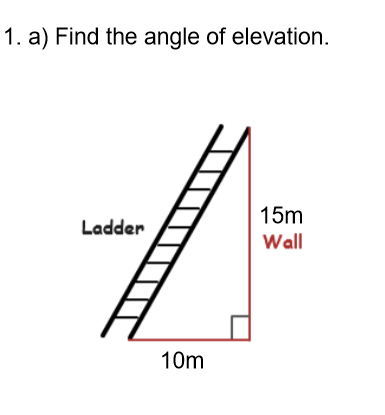
Relationship Between Slope and Angle of Elevation

Recall:

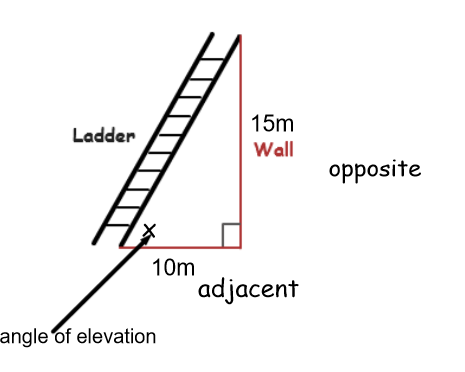
The angle of elevation is the angle is the angle between the horizontal and the line of sight. For an object such as a ramp, it is the angle between the horizontal ground and the ramp.



Examples:



\*\*\*\*\* Label the diagram\*\*\*\*\*



We know the opposite and adjacent sides so we will use the tangent ratio to find the angle of elevation (x).

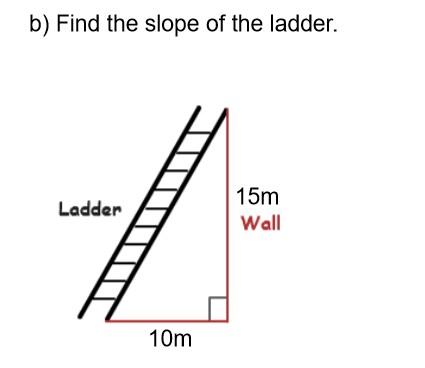
Tan x =

Tan x =

Tan x = 1.5

X = tan-1 1.5

X = 56.3°



Slope =

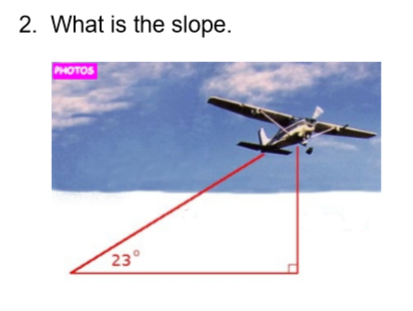
Slope =

=

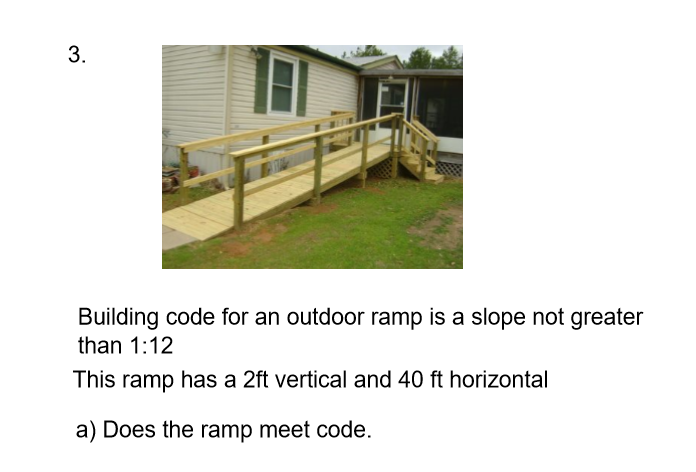
= 1.5

\*\*\* From this we see that \*\*\*

**Tangent of the angle of elevation = Slope**



Tan 23° = 0.42



Answer:

Slope =

=

=

= 0.05

Slope for code =

= 0.083

Since 0.05 < 0.083 the ramp meets code.

Tan x = 0.05

X = tan-1 0.05

X = 3°

The angle of elevation is 3°.

Practice Questions from the book

p. 278-279 # 1 to 6