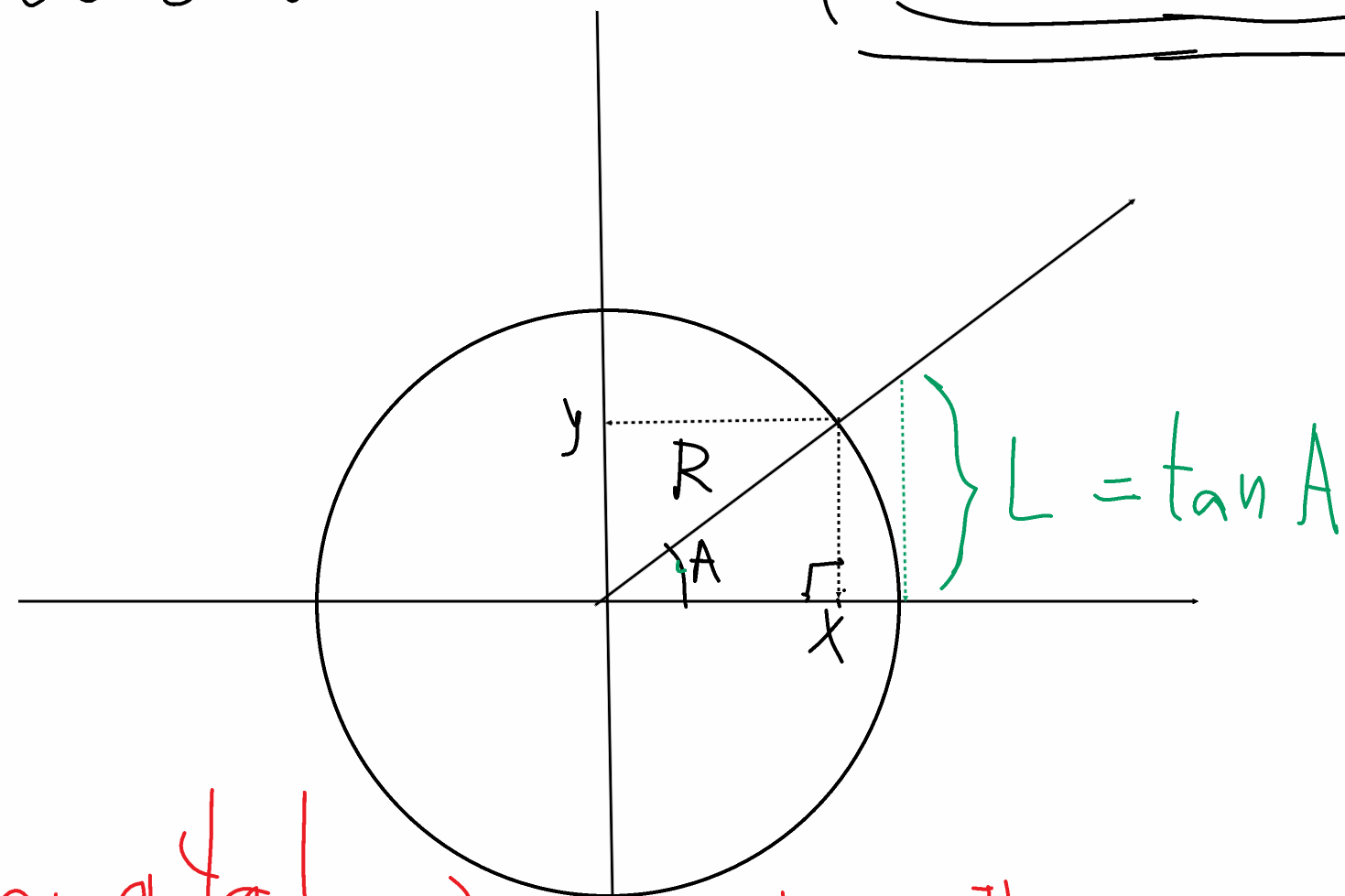


TRIGONOMETRY

Thu 14 May 2019

FUNDAMENTAL TRIG. RATIOS

Consider a circle of radius $R=1$



Sine: $\sin A \equiv \frac{y}{R} = y$

Cosine: $\cos A \equiv \frac{x}{R} = x$

tangent: $\tan A \equiv \frac{y}{x} = \frac{L}{R} = L$

Fundamental
Trigonometric
Relation

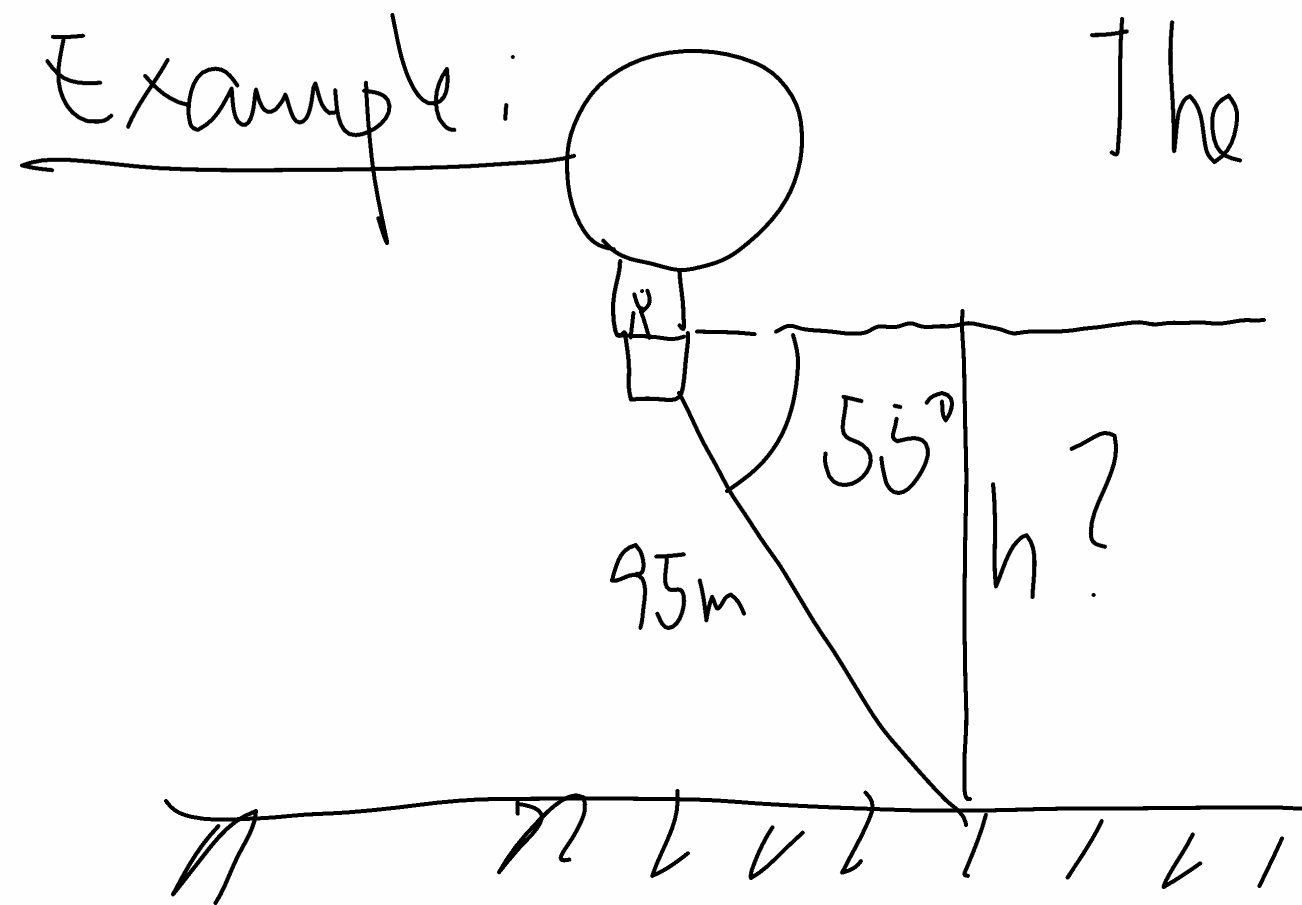
Apply Pythagoras Theorem Divide by R^2

$$x^2 + y^2 = R^2 \rightarrow \frac{x^2}{R^2} + \frac{y^2}{R^2} = 1 \rightarrow$$

$$\cos^2 A + \sin^2 A = 1$$

Because small & large
triangles are congruent

PROBLEMS INVOLVING RIGHT TRIANGLES



The angle of **depression** to the rope is 55° .

The rope is fully extended & is $95m$ long.
What's the wren's height of the balloon?

This is a right triangle. Hypotenuse is $95m$.
The acute angle is 55° & h is its opposite side.
Hence we can use the sine

$$\sin 55 = \frac{h}{95} \rightarrow h = 95 \sin 55^\circ = \underline{77.8m}$$

HOMEWORK FOR THU 16 MAY

page 272 Exercises 6 & 8