

WARMUP

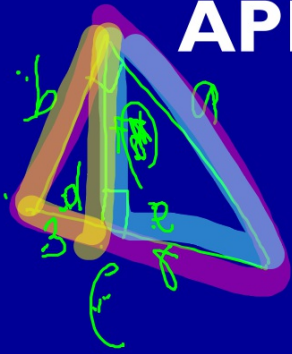
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OARS

$\frac{SH}{L}$ ~~$\frac{d}{F}$~~

SECTION 8.7:

APPLICATIONS OF RIGHT TRIANGLE TRIGONOMETRY



Standards:

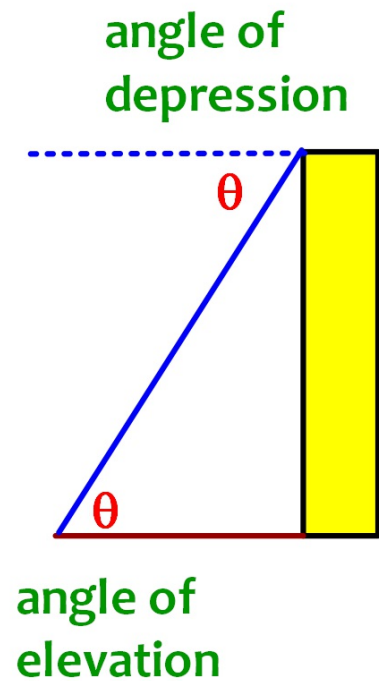
SOH CAH TOA

$\frac{c}{a}$ $\frac{H}{L}$ $\frac{c}{a}$ $\frac{a}{e}$

ANGLE OF ELEVATION & ANGLE OF DEPRESSION

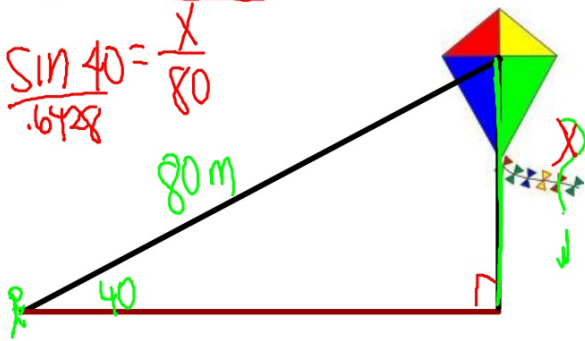
If a person on the ground looks up to the top of a building, the angle between the line of sight and the horizontal is the angle of elevation.

If a person on top looks down at a car on the ground, the angle formed between the line of sight and the horizontal is the angle of depression.

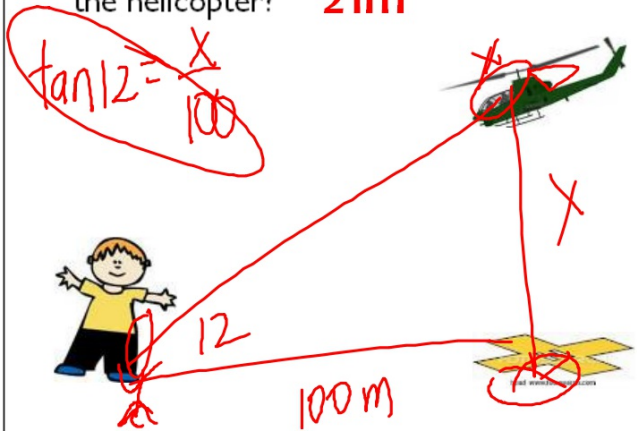


#1-7: Express lengths correct to the nearest meter and angles correct to the nearest degree.

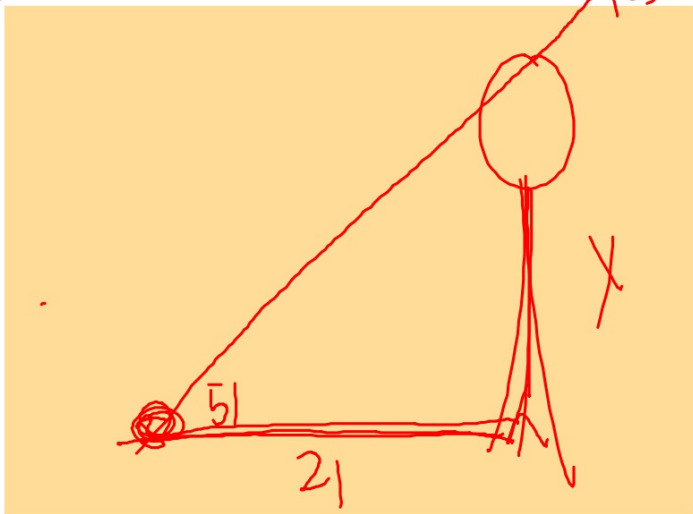
- 1) You are flying a kite and have let out 80 m of string. The kite's angle of elevation with the ground is 40° . If the string is stretched straight, how high is the kite above the ground? **51m**



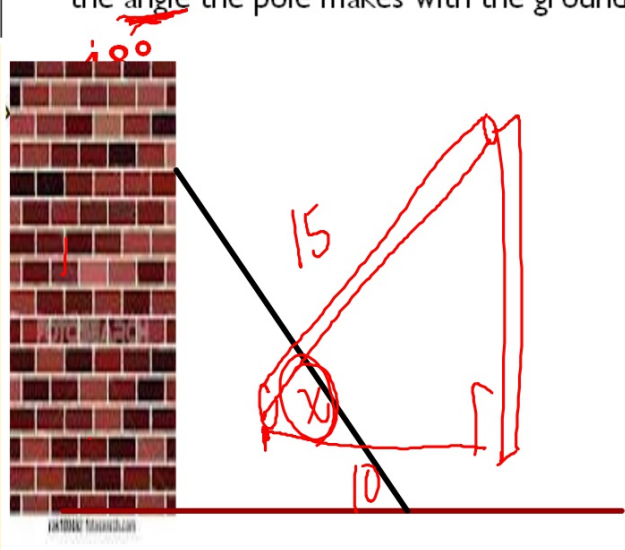
- 2) A helicopter (H) is hovering over a landing pad (P) 100 m from where you are standing (G). The helicopter's angle of elevation with the ground is 12° . What is the altitude of the helicopter? **21m**



- 3) A tree casts a shadow 21 m long. The angle of elevation of the sun is 51° . What is the height of the tree? **26m**



- 4) A 15 m pole is leaning against a wall. The foot of the pole is **10m** from the wall. Find the angle the pole makes with the ground.

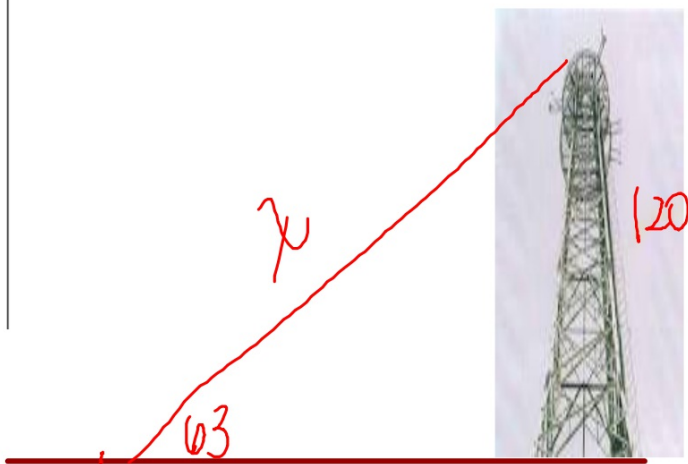


$$\cos x = \frac{10}{15}$$



- 5) A guy wire reaches from the top of a 120 m television transmitter tower to the ground. The wire makes a 63° angle with the ground. Find the length of the guy wire.

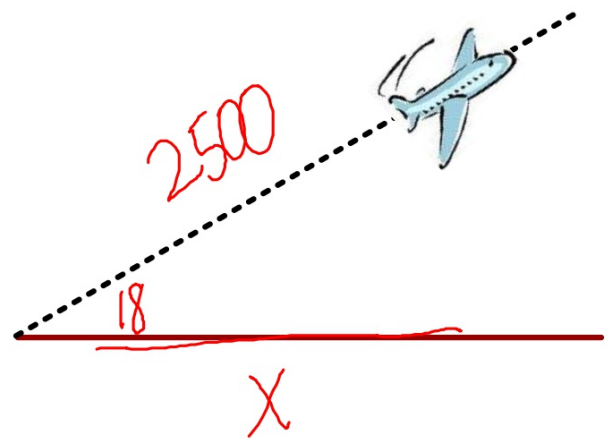
135m



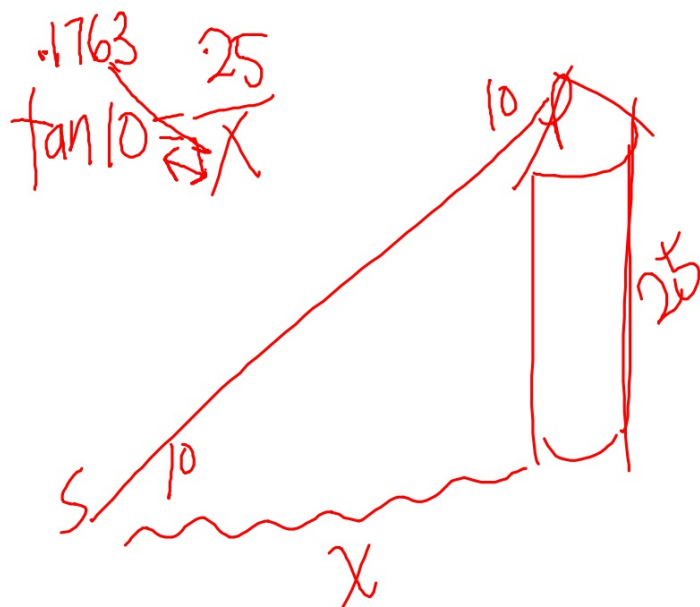
- 6) An airplane climbs at an angle of 18° with the ground. Find the ground distance the plane travels as it moves 2500 m through the air. Give your answer to the nearest 100 m.

2400m

cos



- 7) A lighthouse operator at point P 25 m above sea level sights a sailboat at point S . The angle of depression of the sighting is 10° . How far is the boat from the base of the lighthouse? Give your answer to the nearest 10 m. **142m**



HOMEWORK

Assignment #8.7a

- 8.7 Worksheet
- Pages 318-319 #1-6

****TUESDAY FEB 14th - QUIZ CH 8****

****THURSDAY FEB 16th - TEST CH 8****

