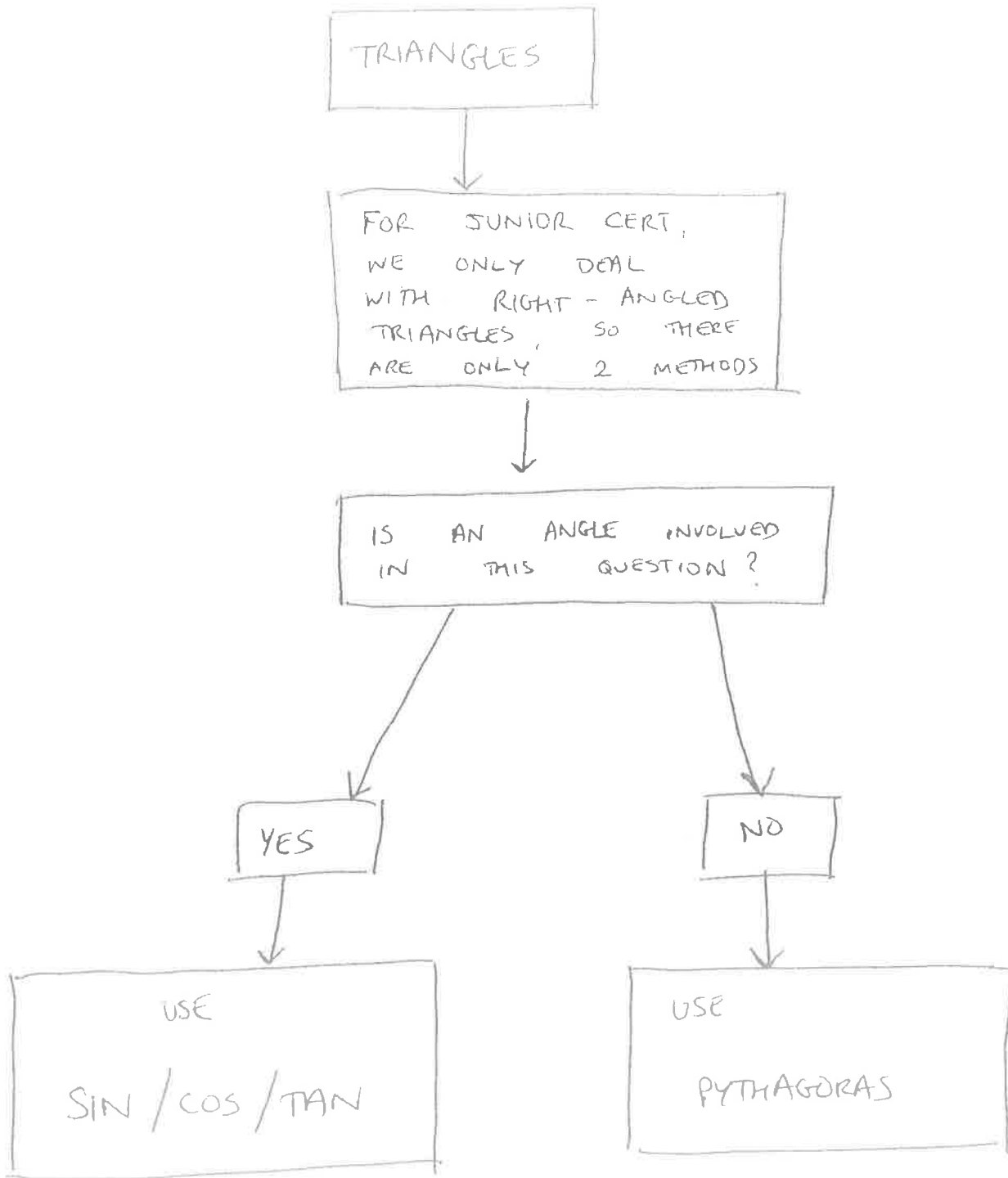


# TRIGONOMETRY

- CALCULATING ANGLES / SIDES OF TRIANGLES  
- VERY IMPORTANT / PRACTICAL.



- ① DRAW TRIANGLE
- ② LABEL SIDES
- ③ CHOOSE SIN / COS / TAN
- ④ MAKE AN EQUATION
- ⑤ SOLVE IT.

→ USE RHYME

$$a^2 + b^2 = c^2$$

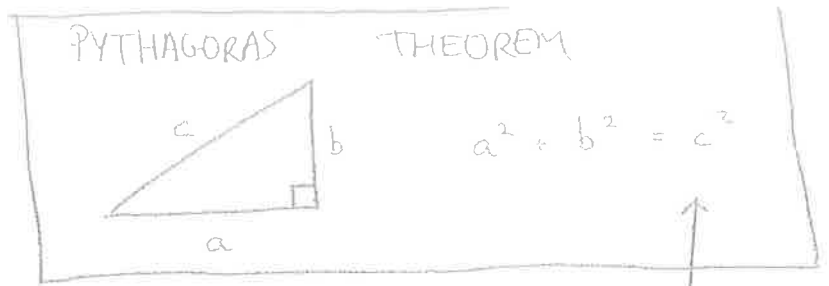
↑  
HYPOTENUSE (LONGER)

# PYTHAGORAS

(NO ANGLE INVOLVED)

USE WHEN WE DON'T CARE ABOUT ANGLES.

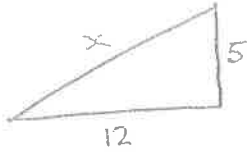
IF WE KNOW TWO SIDES, WE CAN WORK OUT THE LENGTH OF THE OTHER ONE.



HYPOTENUSE ALWAYS ON ITS OWN

DON'T WORRY ABOUT THE LETTERS A, B, C.

eg ①



$$5^2 + 12^2 = x^2$$

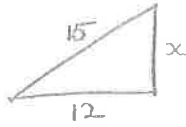
$$25 + 144 = x^2$$

$$169 = x^2$$

$$x = \sqrt{169}$$

$x = 13$

②



$$x^2 + 12^2 = 15^2$$

$$x^2 + 144 = 225$$

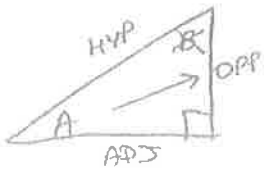
$$\underline{-144} \quad \underline{-144}$$

$$x^2 = 81$$

$x = 9$

# SIN / COS / TAN

USE WHEN WE ARE GIVEN INFORMATION, OR WE WANT TO FIND OUT ABOUT, THE ANGLE



IMPORTANT: DECIDE WHICH ANGLE YOU'RE USING

- ① LABEL SIDES OPP / ADJ / HYP
- ② CHOOSE SIN / COS / TAN
- ③ WRITE AN EQUATION USING SIN / COS / TAN.
- ④ SOLVE.

$$\sin A = \frac{\text{OPP}}{\text{HYP}} \quad \cos A = \frac{\text{ADJ}}{\text{HYP}} \quad \tan A = \frac{\text{OPP}}{\text{ADJ}}$$

THIS IS IN TABLES BOOK, BUT NOT AS CLEAR AS THIS...  
SO REMEMBER RHYME:

SUMMER ON HOLIDAYS

CHRISTMAS AT HOME

THANKSGIVING OVER IN AMERICA

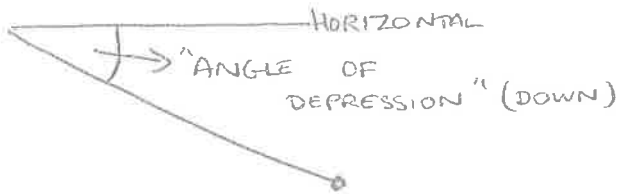
REMEMBER: USE INVERSE SIN / COS / TAN IF WE WANT TO CALCULATE THE ANGLE

eg  $\sin^{-1} A$

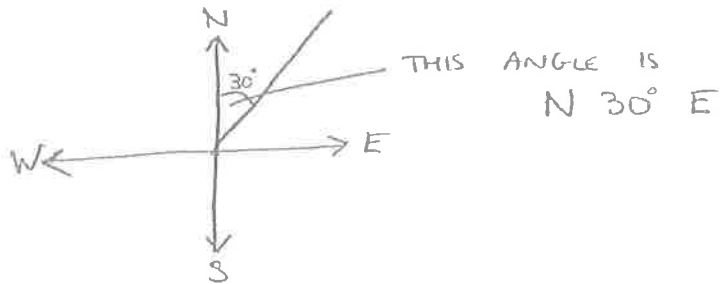
# PRACTICAL PROBLEMS

0 DRAW A PICTURE

(DON'T INCLUDE EXTRA STUFF LIKE TREES/BUILDINGS/RIVERS etc... JUST DRAW THE TRIANGLE(S))



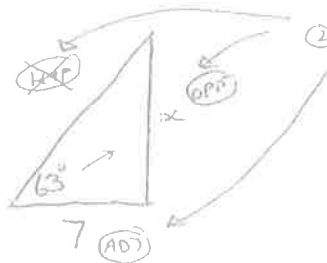
THIS IS THEM TRYING TO CONFUSE YOU.



eg.

A PERSON IS STANDING 7m FROM A BUILDING. HE USES A CLINOMETER TO MEASURE THE ANGLE TO THE TOP OF THE BUILDING FROM THE GROUND LEVEL. HE MEASURES THIS ANGLE TO BE 63°. CALCULATE THE HEIGHT OF THE BUILDING.

① DRAW



② LABEL

③ WRITE CHOOSE SIN/COS/TAN

tan

④ WRITE EQUATION

$$\tan 63 = \frac{x}{7}$$

$$7 \times \tan 63 = x$$

$$\boxed{13.74 \text{ m} = x}$$