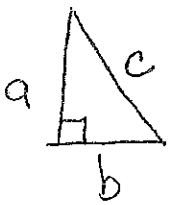
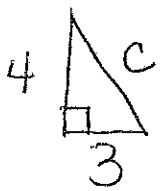
# Trigonometry Review

## Pythagorean Theorem:

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




① to find side c




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

$4^2+3^2=c^2$

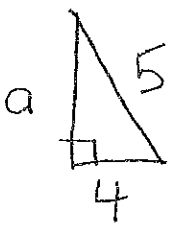
$16+9=c^2$

$25=c^2$ * square root both sides

$\sqrt{25}=\sqrt{c^2}$

$5=c$

② To find a or b.




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

$a^2+4^2=25$

$a^2+16=25$ * subtract

$-16 \quad -16$

$a^2=9$ * square root both sides.

$\sqrt{a^2}=\sqrt{9}$

$a=3$

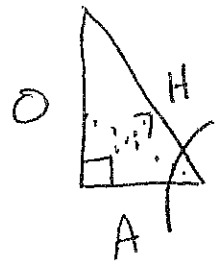
SOH CAH TOA

$\sin\phi = \frac{O}{H}$ $\cos\phi = \frac{A}{H}$ $\tan\phi = \frac{O}{A}$

*make sure your calculator has DEG on the screen

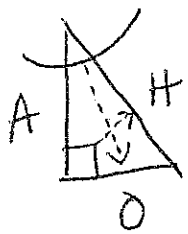
① Label the triangle with O = opposite
H = hypotenuse
A = adjacent

(A)



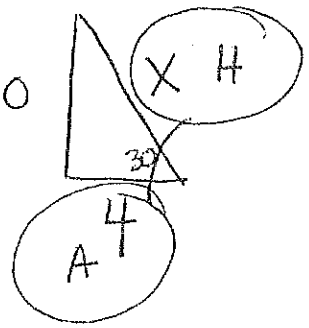

* depends on the angle

(B)




② circle what you need & what you have.

(A)




* choose formula from above

have A & H so use cos.

$\cos\phi = \frac{A}{H}$

$\cos 30 = \frac{4}{x}$

* switch cos30 & x

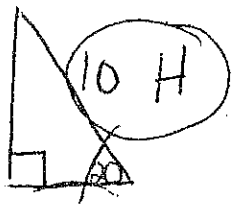
$\cos 30 = \frac{4}{x}$

$x = \frac{4}{\cos 30}$

* use calculator

SOH CAH TOA

2B Circle what you need + want

o 


* choose formula from above.

$\sin\phi = \frac{O}{H}$

$\sin 20 = \frac{x}{10}$ * mult both sides by 10

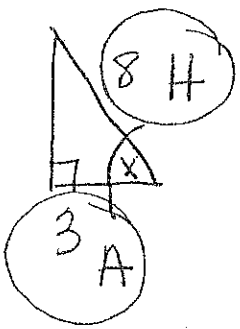
$\sin 20 \times 10 = \frac{x}{\cancel{10}} \times \cancel{10}$

$(\sin 20) \times 10 = x$

use calculator

2C To find the angle:

1. label the sides
2. circle what you have
3. choose the formula

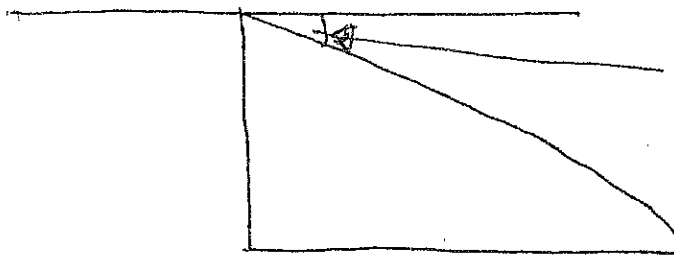
o 


$\cos\phi = \frac{A}{H}$

$\cos\phi = \frac{3}{8}$ ← divide using calculator + keep on the screen then press 2nF (or shift) cos this is the angle

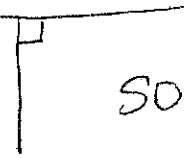
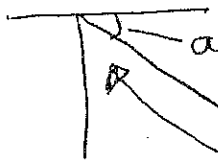
③ angle of <u>depression</u>

↳ down



this is the angle of depression

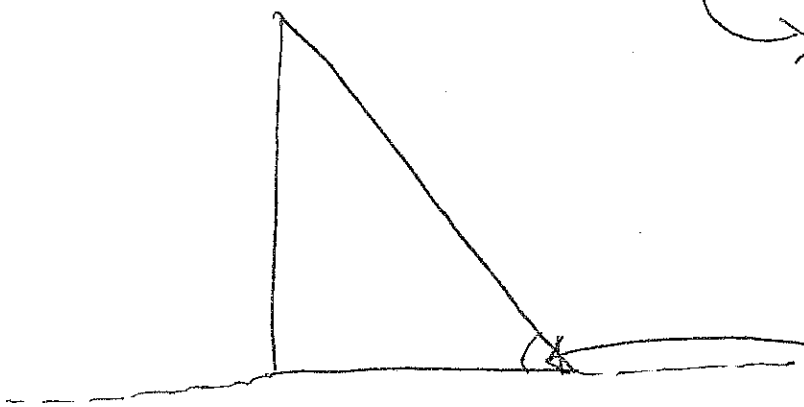
* always down from horizontal line.

* note  so 

angle of depression ⇒ 90° − angle of depression = this angle

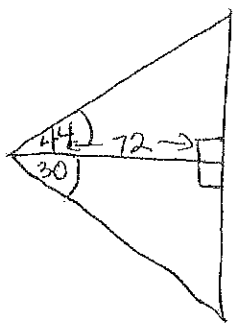
④ angle of <u>elevation</u>

↳ up



this is the angle of elevation going <u>up</u> from a horizontal line

⑤




2 triangles

→ break out into 2 seperate triangles



solve just like Q #2.