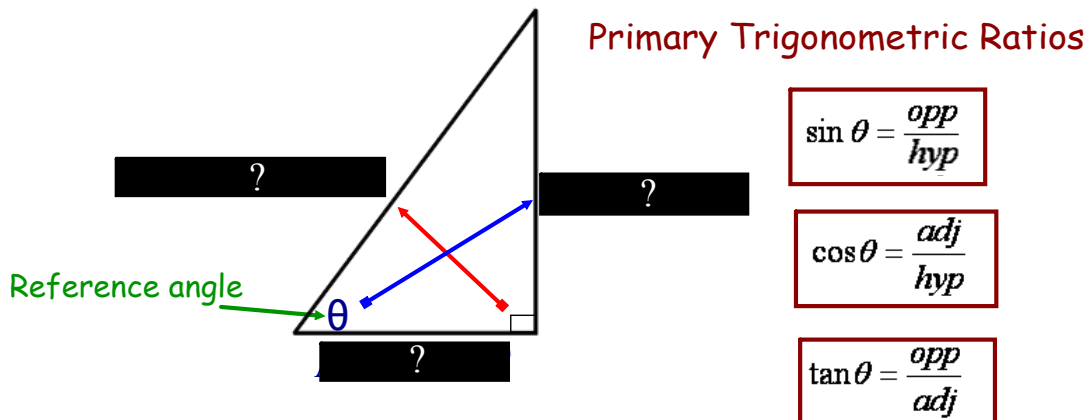


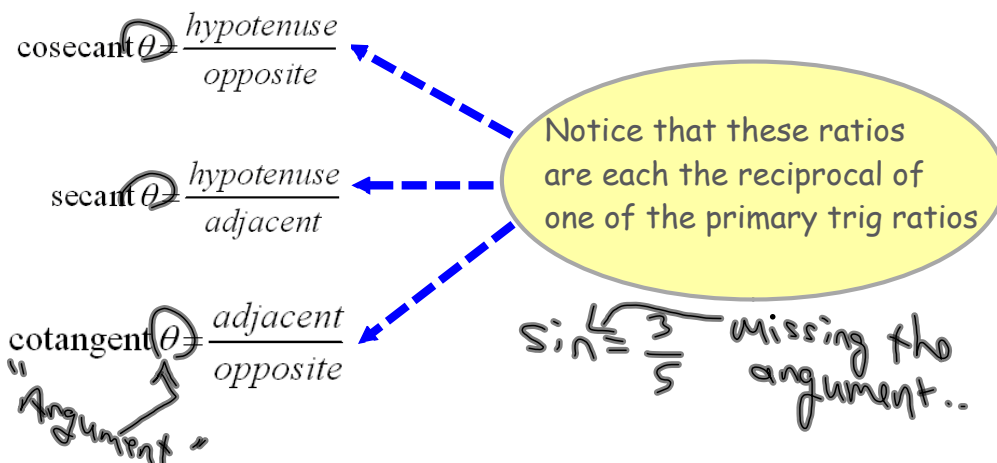
# Trigonometric Ratios

\*\*\* Must have calculator in DEGREE mode \*\*\*



Memory Aid: "SOH CAH TOA"

## Reciprocal Trigonometric Ratios



Primary Ratios	Reciprocal Ratios
$\sin \theta = \frac{\text{opp}}{\text{hyp}}$	$\csc \theta = \frac{\text{hyp}}{\text{opp}}$
$\cos \theta = \frac{\text{adj}}{\text{hyp}}$	$\sec \theta = \frac{\text{hyp}}{\text{adj}}$
$\tan \theta = \frac{\text{opp}}{\text{adj}}$	$\cot \theta = \frac{\text{adj}}{\text{opp}}$

Reciprocal ratios are not found on a calculator....we must learn how to use the reciprocal function on our calculator.

Reciprocal Functions  $\dashrightarrow$   or 

Inverse Trigonometric Functions  
(Arc Trig Functions)



Trigonometric Functions

```

SCI ENG
FLOAT 0.123456789
RADIAN DEGREE
FUNC PAR POL SEQ
CONNECTED DOT
SEQUENTIAL SIMUL
RECALL 0+0% K%
FULL HORIZ G-T
SETCLOCK 12:02:07 11:18PM
    
```

Evaluate each of the following:

$\sin 78^\circ =$  \_\_\_\_\_



$\cos \theta = 0.6469$

$\theta =$  \_\_\_\_\_



$\cot 118^\circ =$  \_\_\_\_\_

```

tan(118
-1.880726465
Ans^-1
-.5317094317
    
```

$\sec 76^\circ = 1.4396$

$\csc 32^\circ = 1.8871$

$\sec \theta = 3.2361$

$\theta =$  \_\_\_\_\_

```

cos^-1(3.2361^-1)
72.00018422
    
```

or

```

3.2361^-1
.3090139365
cos^-1(Ans)
72.00018422
    
```

```

cos^-1(3.2361^-1)
72.00018422
    
```

$\csc \theta = 2.7843$

$\theta = 21^\circ$

$\cot \theta = 6.4233$

$\theta = 9^\circ$

## Warm Up

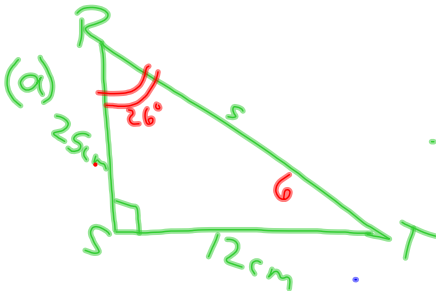
1. Evaluate each of the following:

(a)  $\csc A = 1.1924$   
 $A = \underline{57^\circ}$

(b)  $\sec 168^\circ = \underline{-1.0223}$

2. Solve the following triangles:

(a)  $\triangle RST$ , given that  $S = 90^\circ$ ,  $r = 12$  cm and  $t = 25$  cm.



$\tan R = \frac{12}{25}$   
 $R = \tan^{-1}\left(\frac{12}{25}\right)$   
 $R = \underline{26^\circ}$

$\therefore T = \underline{64^\circ}$

Pythagoras

$s^2 = 12^2 + 25^2$

$s = \underline{27.7 \text{ cm}}$

(s)  $\sin 26^\circ = \frac{12}{s}$

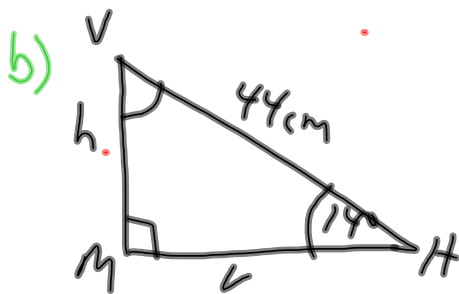
$s = \frac{12}{\sin 26^\circ}$

$s = \underline{27.4 \text{ cm}}$

why different??

$\csc 26^\circ = \frac{s}{12}$

$s = \underline{12 \csc 26^\circ}$



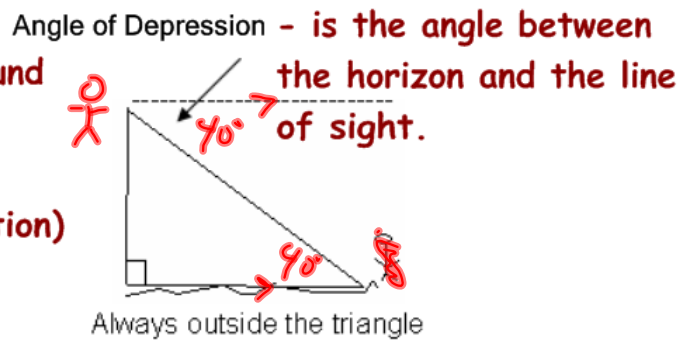
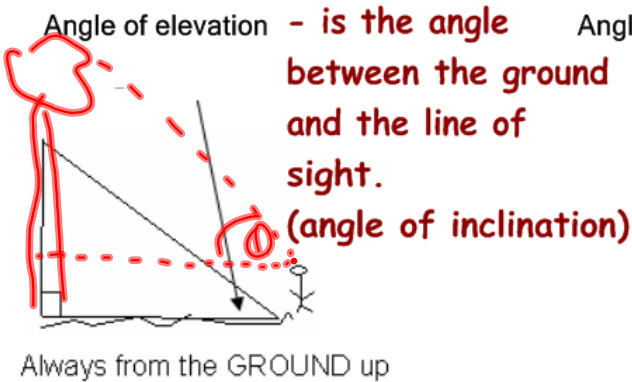
$V = \underline{76^\circ}$

$\sin 14^\circ = \frac{h}{44}$   
 $h = 44 \sin 14^\circ$   
 $h = \underline{10.6 \text{ cm}}$

$\cos 14^\circ = \frac{v}{44}$   
 $v = 44 \cos 14^\circ$   
 $v = \underline{42.7 \text{ cm}}$

# Applications of Right Angle Trigonometry

## ANGLE OF ELEVATION/DEPRESSION



Practice  
Ex. 10.3  
# 1, 2, 3, 4, 5, 6, 8