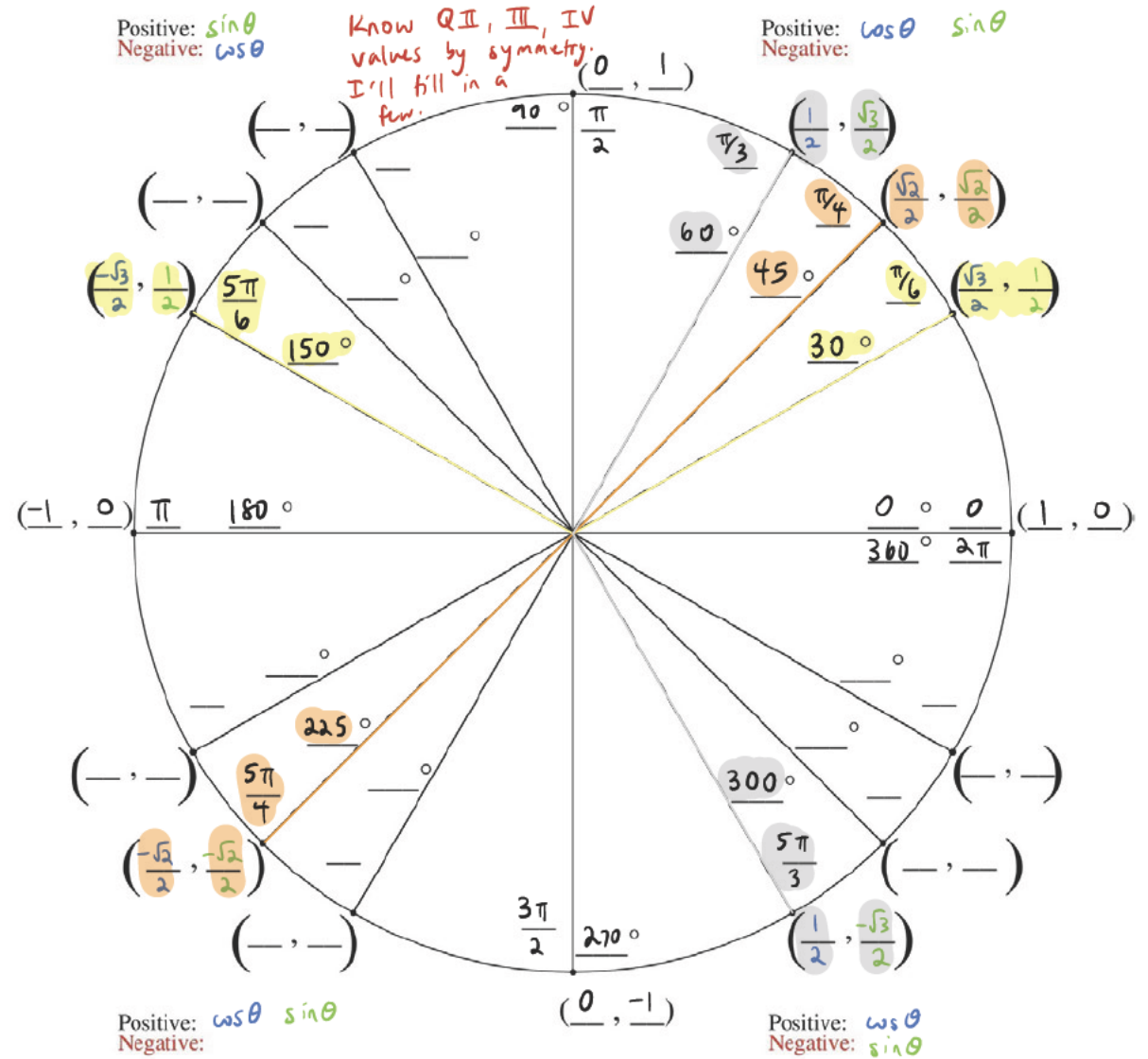
$\cos\theta = \frac{adj}{hyp} = \frac{x}{1} = x$ if $r = 1$ (unit circle)

Similarly, $\sin\theta = y$ if $r = 1$



Polar coordinates

Note: in general, $x = r\cos\theta$, $y = r\sin\theta$ because

$\cos\theta = \frac{x}{r} \Rightarrow x = r\cos\theta$

Similarly, $y = r\sin\theta$

Special case when $r = 1$ (i.e. unit circle)

So when $r = 1$, $\cos\theta = x$ $\sin\theta = y$

[redacted]

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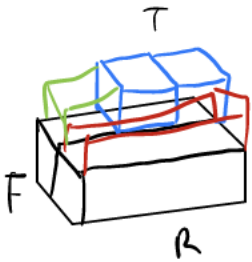
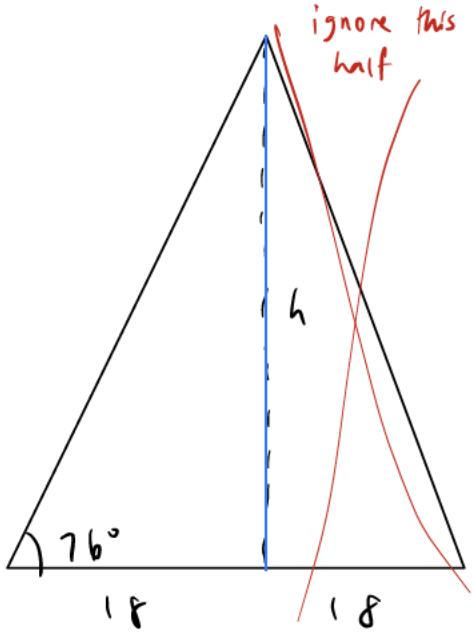
60)



F

R

56)



right angle

$\sin = \frac{\text{opp}}{\text{hyp}}$ $\cos = \frac{\text{adj}}{\text{hyp}}$

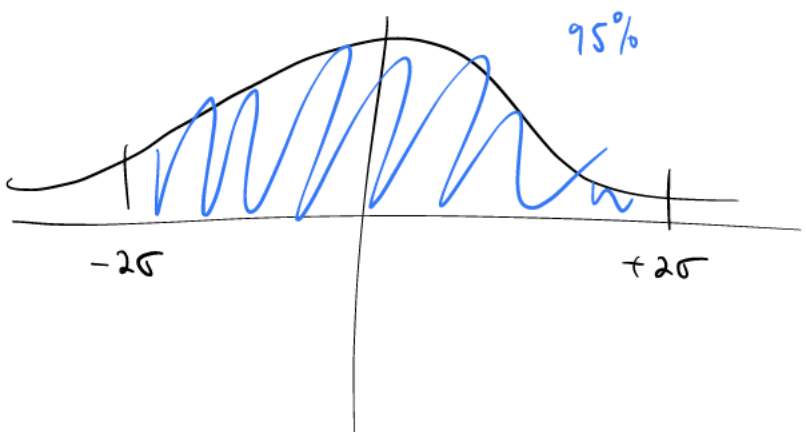
$\tan = \frac{\text{opp}}{\text{adj}}$

$\tan(76^\circ) = \frac{h}{18}$ $h = 18\tan(76^\circ)$

non right angle

$\frac{\sin A}{a} = \frac{\sin B}{b}$ $c^2 = a^2 + b^2 - 2ab\cos C$

57)



33) {HH, HT, TH, TT}

equal chance

HH on 1st toss is 1/4

Independent

A = event 1
B = event 2

IF independent, P(A|B) = P(A)

HT HH H

↓ given

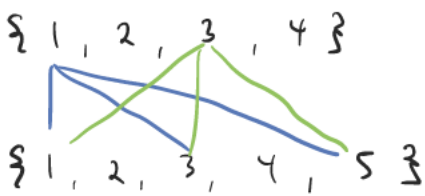
Also if independent,

$P(A \cap B) = P(A)P(B)$

↳ and

54) K ✓

Only odd · odd = odd



2 shirts

3 pants

How many outfits? 2 · 3 = 6

$\frac{6}{20} = \frac{3}{10}$

44) $\sin\theta = \frac{\text{max width}}{\text{max length}} = \frac{0.6}{1.2} = \frac{1}{2}$

F. 30°

Focus only on important things when doing an "overloaded" question

55) Want volume

units Area = length^2 $A = 630\ ft^2$

depth = 5 ft

units Volume = length^3 Volume = $3150\ ft^3$

perimeter = length + length = length

volume = length^3

56) $3f0204032^{1/5} = 52$

between 10 and 100

$10^5 = 10000$ $100^5 = 10000000000$

← 3f0204032 → mul, mfhi mflo

57) $18 = \det\left(\begin{bmatrix} 4 & b \\ 2 & 3 \end{bmatrix}\right) = 12 - 2b = 18$

$b = -3$

$\det\left(\begin{bmatrix} a & b \\ c & d \end{bmatrix}\right) = ad - bc$

$x + 2y = a$
$2x + 4y = b$

How many solutions?

$\det\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix} = 1(4) - 2(2) = 0$

If a=b, ∞
Else, 0