

WED 10-31-07



HAPPY HALLOWEEN!

# B6 TEST - CORRECT & LEARN

## FUN GIFT

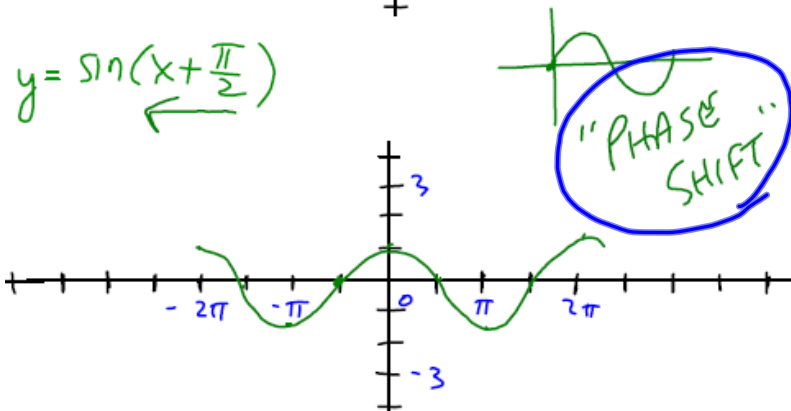
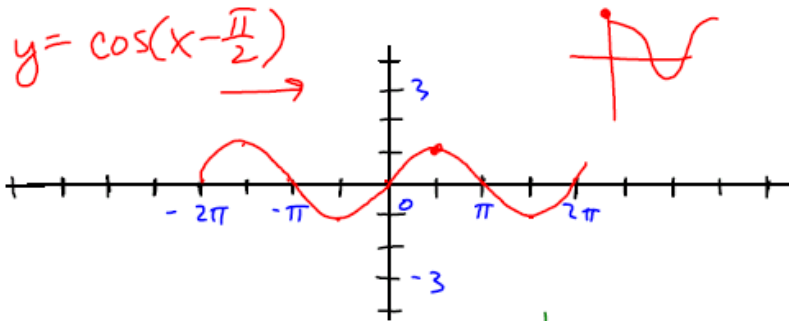
(12)  $2 \sin \frac{7\pi}{8} \cos \frac{8\pi}{7}$

(18)  $\cos 4a$

(14)  $\frac{\sqrt{2}}{2}$

(20)  $\cos \frac{9\pi}{16}$

(16) 0



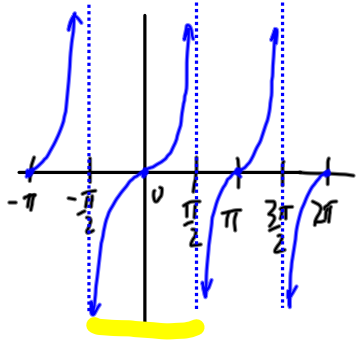
# "BASICS" OF tan



DEFN:  $\tan = \{(x, y) : y = \tan x = \frac{\sin x}{\cos x}; \cos x \neq 0\}$

DOMAIN:  $\{x : x \in \mathbb{R}, x \neq (2k+1) \cdot \frac{\pi}{2}, k \in \mathbb{Z}\}$

RANGE:  $\mathbb{R}$



$y = \tan x$

$\tan 0 = \frac{\sin 0}{\cos 0} = \frac{0}{1} = 0$

$\tan \pi = \frac{\sin \pi}{\cos \pi} = \frac{0}{-1} = 0$

$\tan \frac{\pi}{6} = \frac{\sqrt{3}}{3}$

F. PERIOD =  $\pi$

$\tan(x + k \cdot \pi) = \tan x;$

$\tan$ POS	$\tan$ NEG
I, III	II, IV

$\tan \frac{\pi}{2} = \text{UNDEF}$

$\tan \frac{\pi}{3} = \frac{\sin \frac{\pi}{3}}{\cos \frac{\pi}{3}} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \frac{\sqrt{3}}{1} = \sqrt{3}$

DERIVE:  $\tan(a+b)$  IN TERMS OF  $\tan$ .

$$\tan(a+b) = \frac{\sin(a+b)}{\cos(a+b)}$$

$$= \frac{\sin a \cos b + \cos a \sin b}{\cos a \cos b - \sin a \sin b}$$

$$= \frac{\frac{\sin a \cos b}{\cos a \cdot \cos b} + \frac{\cos a \sin b}{\cos a \cdot \cos b}}{\frac{\cos a \cos b}{\cos a \cdot \cos b} - \frac{\sin a \sin b}{\cos a \cdot \cos b}} \quad \because \cos a \cdot \cos b$$

$$= \frac{\tan a \cdot 1 + 1 \cdot \tan b}{1 - \tan a \cdot \tan b}$$

$$\therefore \tan(a+b) = \frac{\tan a + \tan b}{1 - \tan a \cdot \tan b} \quad \forall a, b \in \mathbb{R}$$

$\tan$  of a sum

$$\tan(a-b) = \frac{\tan a - \tan b}{1 + \tan a \cdot \tan b}$$

O.T.L.

• P.19 1-4, 5a, 6a-c,  
5c, 6d-f, ~~7, 8a, 8b, 9~~

• FUN TRIG GIFT 22-30 (EVENS)

• KNOW tan BASICS

• CORRECT RG TEST