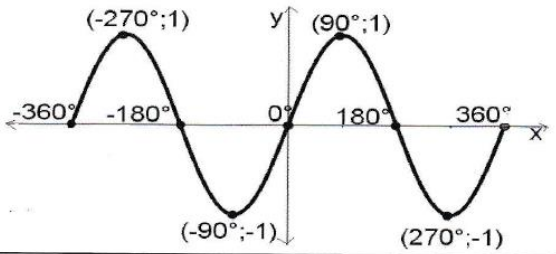
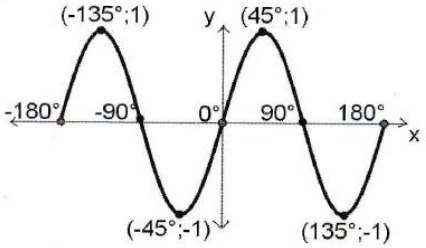
Trigonometric graphs

Know the basic graphs well!! (also theory in gr 10 X- Factor)

1. $y = \sin x$ period = 360° amplitude = 1

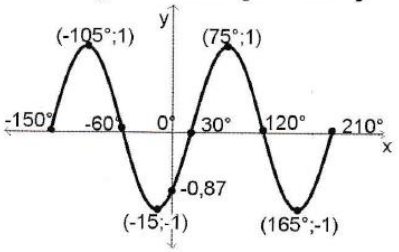


$y = \sin 2x$



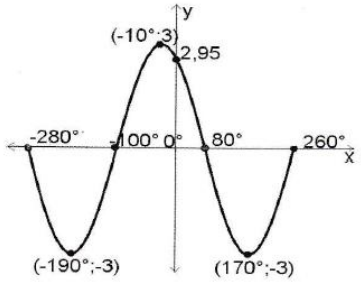
Period = 180°

$y = \sin 2(x - 30°)$



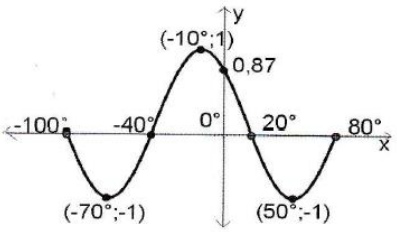
period= 180° and shifted 30° to the right

$y = 3 \cos (x + 10°)$



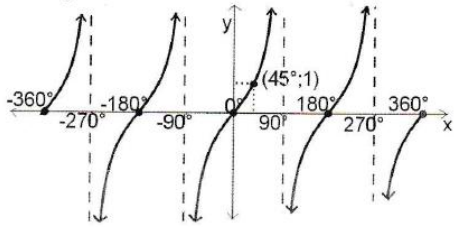
Amplitude 3/ shifted 10° to the left

$y = \cos (3x + 30°)$
$= \cos 3(x + 10°)$



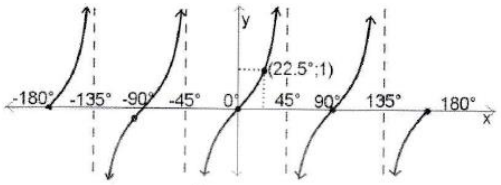
period 120°/shifted 10° to the left

3. $y = \tan x$



no amplitude, period =180°

$y = \tan 2x$

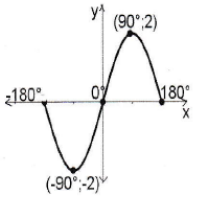


no amplitude, period =90°

More Theory	
1. $y = \boldsymbol{a} \sin x$	$\boldsymbol{a}$ amplitude
2. $y = \sin \boldsymbol{b}x$	$\frac{360°}{b}$ new period
3. $y = \sin x + \boldsymbol{q}$	vertical translation of $\boldsymbol{q}$ units
4. $y = \sin (x - \boldsymbol{p})$	horizontal translation of $\boldsymbol{p}$ degrees
5. $y = \sin (bx - bp)$ $y = \sin b(x - \boldsymbol{p})$	horizontal translation of $\boldsymbol{p}$ degrees

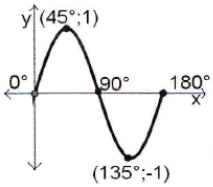
Given: $\boldsymbol{f(x) = \sin x}$ Draw sketches of the following:

1. $y = \mathbf{2}\sin x$ or $\mathbf{2}f(x)$



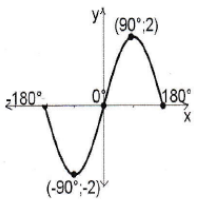
amplitude: 2 **period: 360°**

2. $y = \sin \mathbf{2}x$ or $f(\mathbf{2}x)$



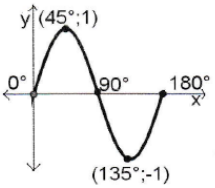
amplitude: 1 **period: 180°**

1. $y = \mathbf{2}\sin x$ or $\mathbf{2}f(x)$



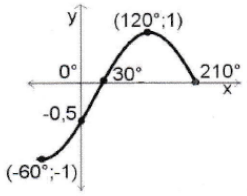
amplitude: 2 **period: 360°**

2. $y = \sin \mathbf{2}x$ or $f(\mathbf{2}x)$



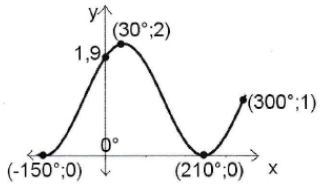
amplitude: 1 **period: 180°**

3. $y = \sin (\boldsymbol{x - 30°})$ or $f(\boldsymbol{x - 30°})$



Graph moves 30° to the right

4. $y = \sin (\boldsymbol{x+60°})+\mathbf{1}$ or $f(\boldsymbol{x+60°})+\mathbf{1}$



Graph moves 60° to the left and 1 unit upwards

$y = \tan \boldsymbol{b}x$ new period $\frac{180°}{\boldsymbol{b}}$