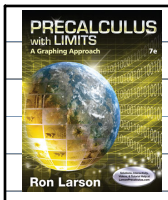


4.5 (Day 1) Graphing Sine and Cosine Functions

Objectives: Be able to sketch y=Asin(kx+c)

and

y=Acos(kx+c)

Review:

1. $y = x^2$

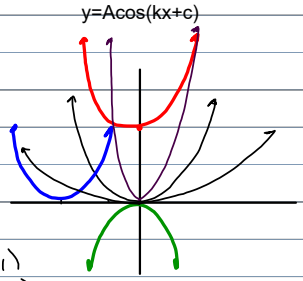
A $y = x^2 + 2$

B $y = (x+2)^2$

C $y = -x^2$

D. $y = 3x^2 \ (3>1)$

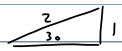
E $y = \frac{1}{2}x^2 \ (\frac{1}{2}<1)$



$y = \sin x$

$\sin 0° = 0$

$\sin 30° = \frac{1}{2}$



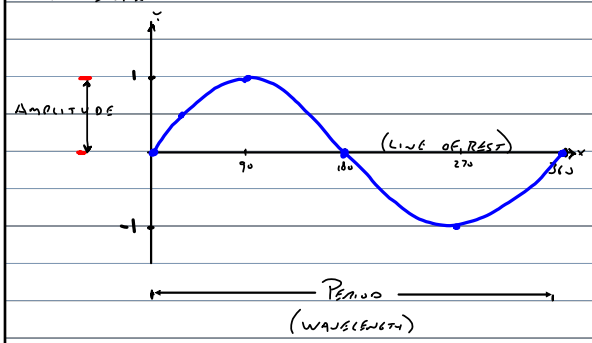
$\sin 90° = 1$

$\sin 180° = 0$

$\sin 270° = -1$

$\sin 360° = 0$

$y = \sin x$



$y = \cos x$

$\cos 0° = 1$

$\cos 30° = \frac{\sqrt{3}}{2} = 0.866$

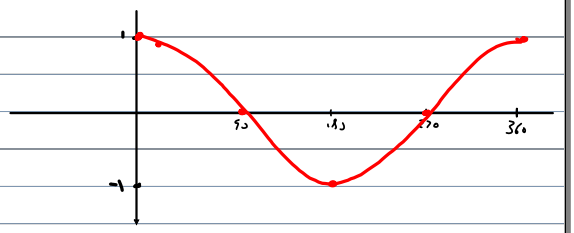
$\cos 90° = 0$

$\cos 180° = -1$

$\cos 270° = 0$

$\cos 360° = 1$

$y = \cos x$



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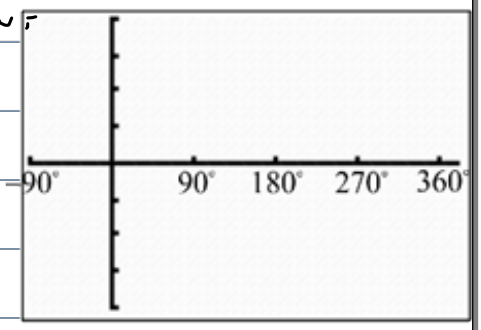
GRAPH EACH

factor out



1. $y = 3\sin(4\theta - 16^\circ)$

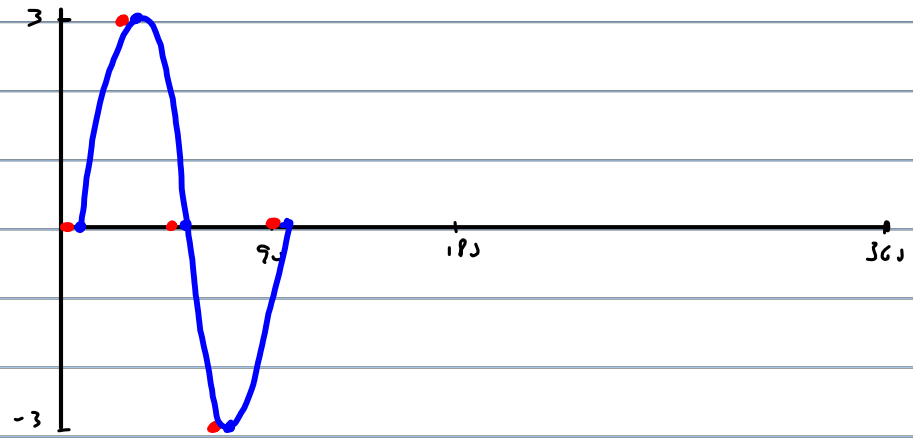
$y = 3\sin 4(\theta - 4^\circ)$

a, k, P.S.

Amp. $= |a| = |3| = 3$

Period $= \frac{360^\circ}{k} = \frac{360^\circ}{4} = 90^\circ$

P.S. Right 4° or 4°



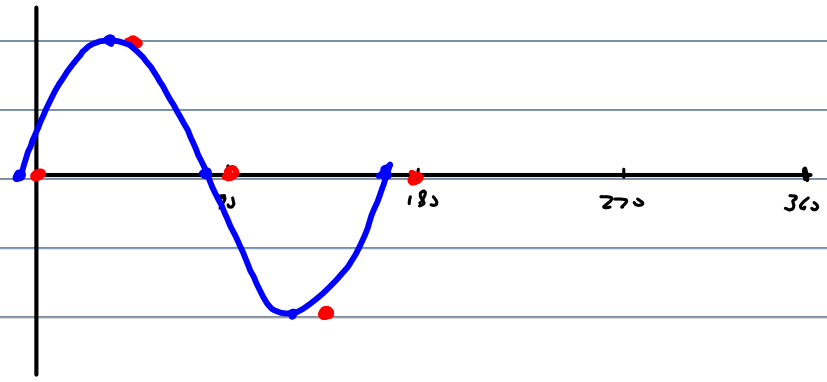
2. $y = 2\sin(2\theta + 20^\circ)$

$y = 2\sin 2(\theta + 10^\circ)$

Amp $= |2| = 2$

Period $= \frac{360^\circ}{2} = 180^\circ$

P.S $=$ Left 10° or -10°



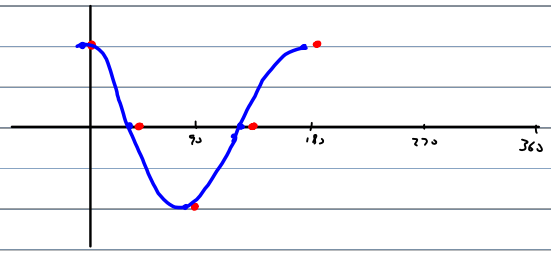
3. $y = 2\cos(2\theta + 12^\circ)$

$y = 2\cos 2(\theta + 6^\circ)$

AMP $= |2| = 2$

PERIOD $= \frac{360^\circ}{2} = 180^\circ$

P.S. = LEFT 6 OR -6°



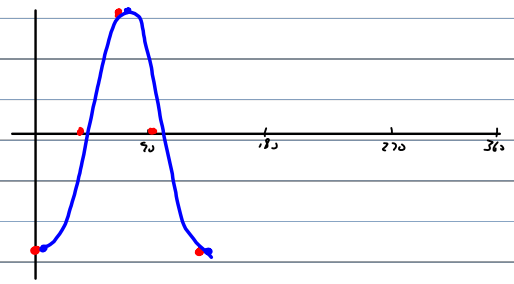
4. $f(x) = -3\cos(3\theta - 12^\circ)$

$f(x) = -3\cos 3(\theta - 4^\circ)$

AMPLITUDE $= |-3| = 3$

PERIOD $= \frac{360^\circ}{3} = 120^\circ$

P.S = RIGHT 4° OR 4°



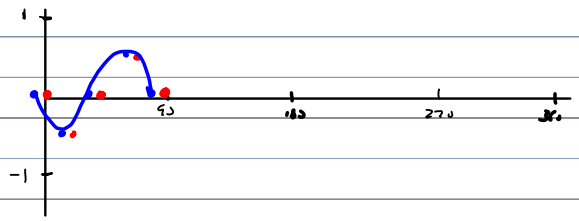
5. $f(x) = -\frac{1}{2}\sin(4\theta + 24^\circ)$

$f(x) = -\frac{1}{2}\sin 4(\theta + 6^\circ)$

AMP $= \left|-\frac{1}{2}\right| = \frac{1}{2}$

PERIOD $= \frac{360^\circ}{4} = 90^\circ$

P.S = LEFT 6° OR -6°



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