Today

- Midterm comments
- Trig review
- Rhythmic processes

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- $(a+b)^2 \neq a^2 + b^2$.
- sqrt(a^2-(a/2)^2) = sqrt(3)a/2.
- Marks should appear on Connect over the weekend. Midterms available for pickup starting Tuesday (10am-11:30, 12-2)

Trig review

- The SI convention for the units used for angles is radians, not degrees. Although degrees date back thousands of years they are less convenient, for example, in calculating the arclength:

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- Or baking.

Trig review

$$\sin(2\pi/3) =$$

(A) $\dfrac{\sqrt{3}}{2}$

(B) $-\dfrac{\sqrt{3}}{2}$

(C) $\dfrac{1}{2}$

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(A) $\frac{1}{\sqrt{2}}$

(B) 1

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Which of the following is false?

(A) cos(arctan(sqrt(3))) = 1/2

(B) sin(arccos(1/2)) = sqrt(3)/2

(C) arctan(1) = π/4

(D) arcsin(1/2) = π/3

(E) sin(3π/2) = -1

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Trig review

Which is true for all x and y?

(A) $\sin(x+y) = \sin(x)\cos(y) + \sin(y)\cos(x)$

(B) $\sin(x+y) = \sin(x)\sin(y) + \cos(x)\cos(y)$

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- The phase shift is the angle when t=0 (e.g. sin(2t+π/4).
- The time-shift is the time at which the argument of the trig function is 0.

Trig review

What is the period of $h(t) = 8 - 6\sin(4t+1)$?

(A) 4

(B) 1

(C) 1/4

(D) 2π

(E) $\pi/2$

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Period of sin(x) is 2π so...

- When is $(4t+1)=0$?
- When is $(4t+1)=2\pi$?
- Difference between these t values is the period.
- (Same as $4t=2\pi$.)

Trig review

What is the amplitude of $h(t) = 8 - 6\sin(4t+1)$?

(A) 14

(B) 8

(C) 12

(D) 6

(E) -6

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- h(t) goes from a low of 8-6 to a high of 8+6 so the amplitude is 6.

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What is the time-shift of $h(t) = 8 - 6\sin(4t+1)$?

(A) 1

(B) 1/4

(C) 4

(D) $4/2\pi$

(E) $1/2\pi$

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- Rewrite as $h(t)= 8 - 6\sin(4(t+1/4))$ to see h(t) is a sin shifted by 1/4.
- By some definitions, time-shift is -1/4.