

CS 145 Images and Imagination

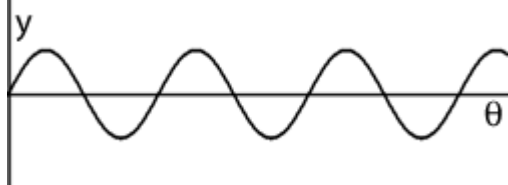
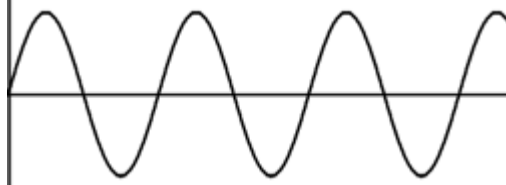
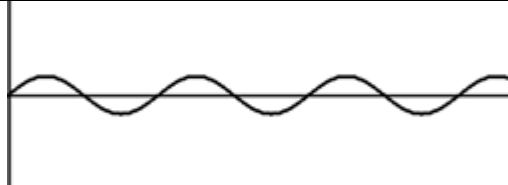
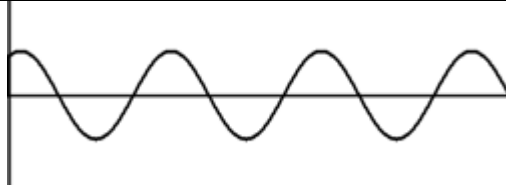
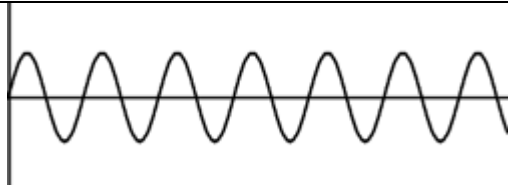
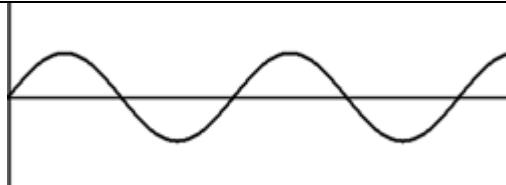
Lab 3: Trig Problems

Spring 2014

1. Figure A shows the graph y as a function of θ for some *amplitude*, *frequency*, and *phase*.

$$y = \text{amplitude} * \sin(\text{frequency} * \theta + \text{phase})$$

For each of the Figures B-F, circle how the values of *amplitude*, *frequency*, and *phase* are different (i.e. larger or smaller or same) from Figure A. If you aren't sure, try plotting y in Processing!

 <p>Figure A:</p> $y = \text{amplitude} * \sin(\text{frequency} * \theta + \text{phase})$	 <p>Figure B</p> <p>amplitude: smaller same <u>bigger</u> frequency: smaller <u>same</u> bigger phase: <u>same</u> different</p>
 <p>Figure C</p> <p>amplitude: <u>smaller</u> same bigger frequency: smaller <u>same</u> bigger phase: <u>same</u> different</p>	 <p>Figure D</p> <p>amplitude: smaller <u>same</u> bigger frequency: smaller <u>same</u> bigger phase: same <u>different</u></p>
 <p>Figure E</p> <p>amplitude: smaller <u>same</u> bigger frequency: smaller same <u>bigger</u> phase: <u>same</u> different</p>	 <p>Figure F</p> <p>amplitude: smaller <u>same</u> bigger frequency: <u>smaller</u> same bigger phase: <u>same</u> different</p>

2. Fill in the missing information assuming a triangle shown above:

	Triangle 1	Triangle 2	Triangle 3
h	5	1	1
x	4	.707 or $\frac{\sqrt{2}}{2}$.5
y	3	.707	$\frac{\sqrt{3}}{2}$

3. Fill in the table with the missing values by using you're the information on the previous page.

Angle 1 is done for you!

No calculator should be used for this! Numeric values should be expressed as integers or fractions (e.g. $\frac{\sqrt{3}}{2}$) or infinity (∞). Simplify your answers where possible.

	Angle 1	Angle 2	Angle 3	Angle 4	Angle 5	Angle 6	Angle 7	Angle 8
Radian Measure	$\frac{\pi}{6}$	$11\pi/6$	$-\pi/2$	$\pi/3$	$3\pi/4$	$5\pi/4$	$7\pi/6$	$4\pi/3$
Degree Measure	30°	-30°	270°	420°	135°	225°	210°	240°
Quadrant I, II, III, IV If on border, give both.	I	IV	III,IV	I	II	III	III	III
sin(Θ)	1/2	-1/2	-1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	-1/2	$-\frac{\sqrt{3}}{2}$
cos(Θ)	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{2}$	0	1/2	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{3}}{2}$	-1/2
tan(Θ)	$\frac{1}{\sqrt{3}}$	$-\frac{1}{\sqrt{3}}$	inf	$\sqrt{3}$	-1	1	$\frac{1}{\sqrt{3}}$	$\sqrt{3}$