

## Math-19 Homework #8

### Reading

Please read sections 5.4-5.6 and 6.4-6.6, then do all concept problems in the posted sections on webassign.

### Problems

- 1). Consider the function:

$$f(x) = 2 \tan(4\pi x - \pi) + 1$$

- What is the period  $P$ ?
- What is the horizontal translation  $b$ ?
- What is the phase angle  $\phi$ ?
- What is the y-intercept?
- Sketch one cycle of the graph in the interval  $(b, b + P)$  and then extend the sketch back to the y-intercept.

- 2). Solve for  $x$ :

$$\tan\left(3x + \frac{\pi}{2}\right) \sin(2\pi x) \cos(6x + \pi) = 0$$

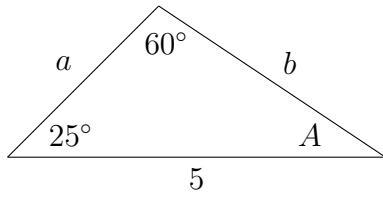
Hint: be careful about domain!

- 3). Two  $1kg$  masses are each suspended on a spring with  $k = \pi^2$  and are stretched downward by 2 units. The first spring is released at  $t = 0$ . The second spring is released at  $t = 3$ .
- Find  $f_1(t)$  for the first mass.
  - Find  $f_2(t)$  for the second mass.
  - What is the phase difference between the two masses?

- 4). Evaluate:

$$\cot\left(\cos^{-1}\frac{x}{\sqrt{1+x^2}}\right)$$

5). Consider the following triangle:



- Determine  $A$ .
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- Determine  $b$ .
- Using Heron's Formula, determine the area of the triangle.