MATH 5071 - Problem Set 12

Dr. Rachael M. Kratzer, rmk24@psu.edu

Due: 2014 July 31

1) Find the average rate of change between the following x-values for: $y = x^3$

i) $x = 0$ and $x = 3$

ii) $x = 3$ and $x = 5$

iii) $x = z$ and $x = z + h$

2) Find the average rate of change between the following x-values for: $y = \frac{1}{x}$

i) $x = 0$ and $x = 3$

ii) $x = 3$ and $x = 5$

iii) $x = z$ and $x = z + h$

3) Convert to degrees without using a calculator.

i) $-\frac{5\pi}{6}$ radians

ii) $\frac{\pi}{12}$ radians

4) Convert to radians without using a calculator.

i) $225°$

ii) $330°$

5) Give exact values without using a calculator (use the special triangles).

i) $\sin(\frac{\pi}{4})$

ii) $\tan(\frac{\pi}{6})$

iii) $\csc(330°)$

iv) $\cos(\frac{5\pi}{6})$

v) $\sec(135°)$

vi) $\cot(210°)$

6) Evaluate to the nearest hundredth with a calculator.

i) $\cos(3)$

ii) $\sin(-4.2)$

iii) $\tan(251°)$

7) Find the a. period, b. amplitude, and c. the phase shift of the graphs of the following equations.

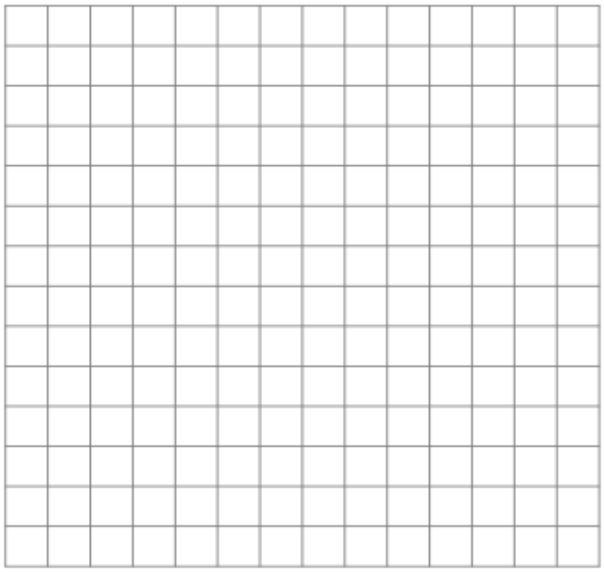
i) $\frac{y}{5} = \cos\left(\frac{x}{2}\right)$

ii) $y = 2\sin(3\pi x)$

iii) $y = 2\sin\left(x - \frac{\pi}{3}\right)$

iv) $h(\theta) = \frac{1}{2}\tan(3\theta)$

8) Graph the function: $y = -4\cos\left(\frac{x}{3}\right)$. Find the domain and range.



9) Graph the function: $y = 4 - 7\sin(2x + 1)$. Find the domain and range.