MATH 1000, Slot $F05$ Worksheet #1

Due: Tuesday Sept 15/2009, by 5pm

Name:

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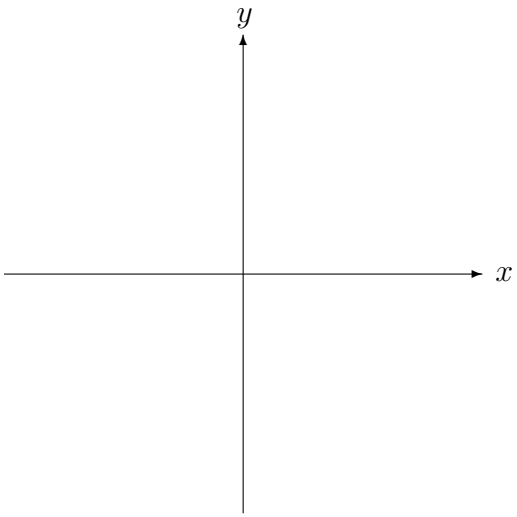
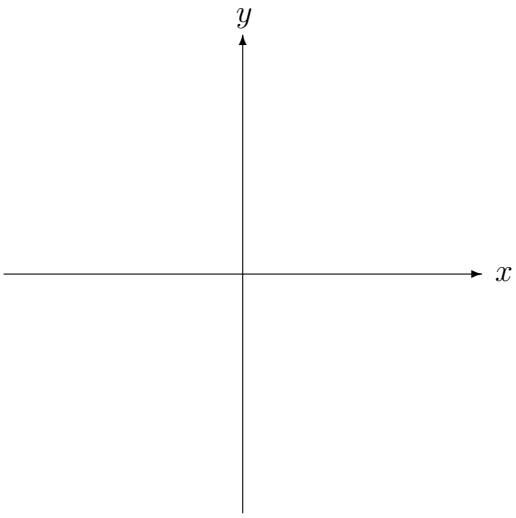
1. Sketch the graph of each function. Try it by hand; that is, without a calculator. Indicate any "special" points on the graph.

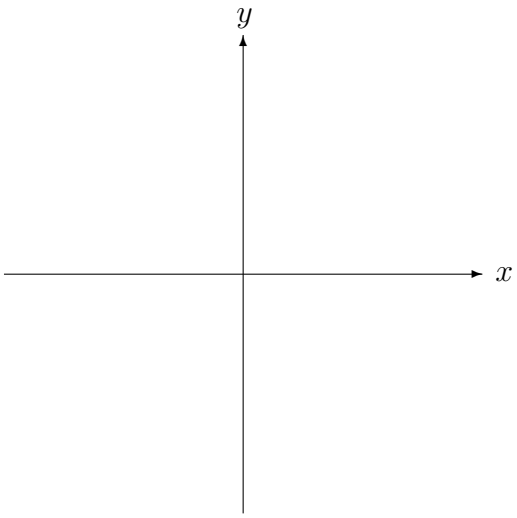
   (a) $f(x) = \sqrt{x+2} - 2$

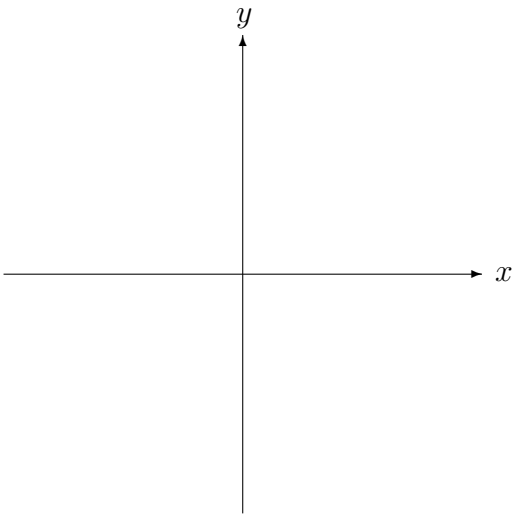
   (b) $g(x) = \sqrt{(3x+2)^2}$

   (c) $y = \dfrac{4x-3}{x-2}$

   (d) $f(x) = 4[\![x/2]\!]$

2. Sketch the graph of $f(x) = \begin{cases} 1-x^2 & \text{if} \quad x \le -1 \\ -x & \text{if} \quad -1 < x < 1 \\ \sqrt{3+x} & \text{if} \quad x \ge 1 \end{cases}$

3. If $\cos x = 2/3$ and $-\pi/2 < x < 0$, find $\sin x$. Then determine

   (a) $\sin(2x)$,

   (b) $\cos(2x)$,

   (c) the quadrant that $2x$ is in.

   Justify all answers.

4. Using your calculator, make up a small table of values which will suggest the value of $\lim_{x\to 1} \dfrac{\sqrt[3]{x}-1}{\sqrt{x}-1}$. Write the apparent limit as a rational number.

5. Using your calculator, make up a small table of values which will suggest the value of $\lim_{x\to 1} \dfrac{\sin(x^2-1)}{\ln(x^2)}$. Write the apparent limit as a rational number.