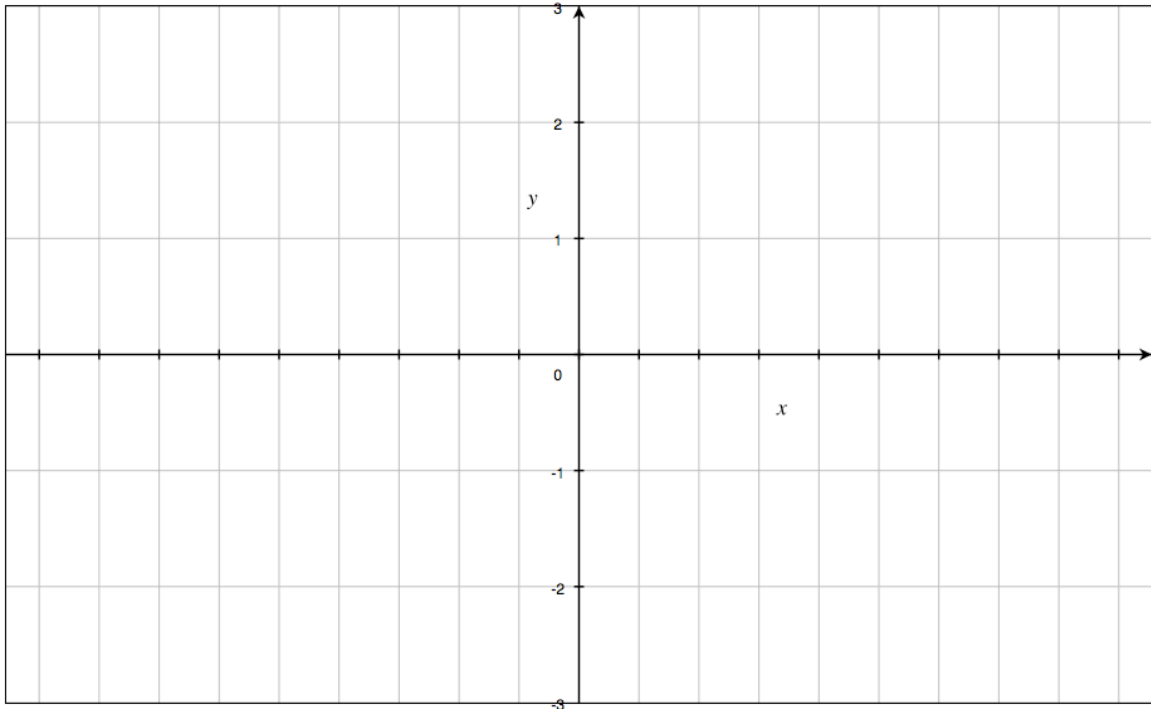
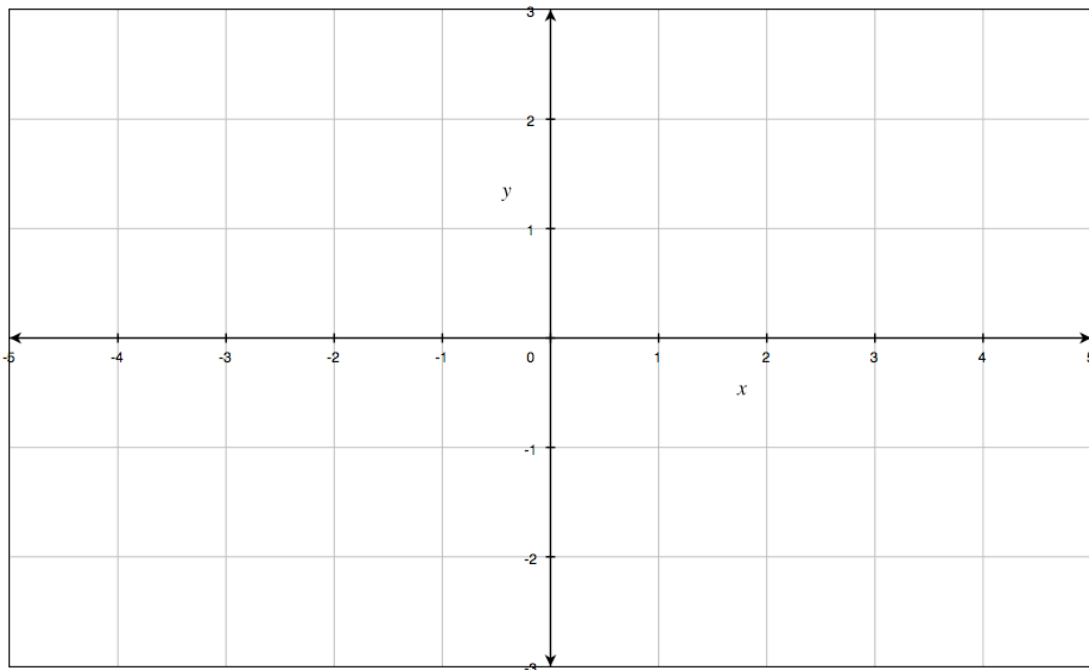


The following problems require that all work leading to answers be shown in a clear, organized, understandable and neat fashion. Answers without this supporting work will receive no points. Indicating that you got your answer from your calculator is not sufficient work supporting your answer. Erase any work that does not support your answer. Also identify your final answer clearly if there is not a designated place to write it. **This practice exam is an outline of the types of problems you will see on the actual exam. Directions will often be similar but the problems will of course be different. For this reason you should find similar problems from homework, notes, and textbook to further practice for the exam.**

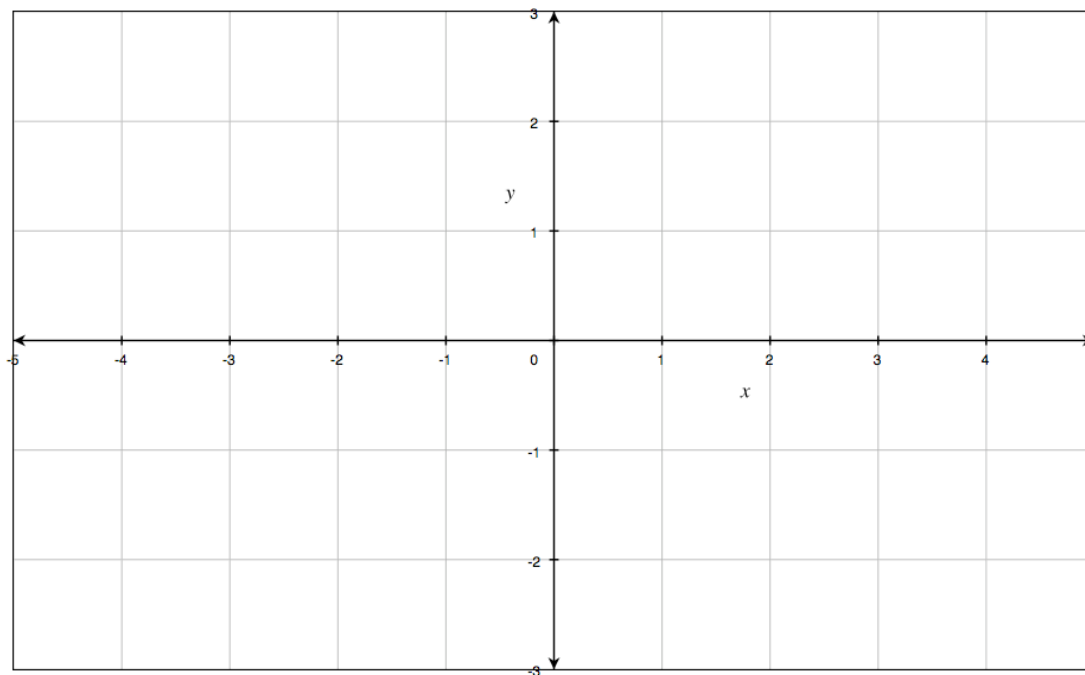
- 1) Graph $y = \cos(2x - \frac{\pi}{3}) + 1$ over 2 periods. Also state the x and y intercepts on the right as coordinate pairs.



- 2) Graph $y = x^2 + 6x + 8$. Also state the x and y intercepts on the right as coordinate pairs.



3) Graph $y = e^{x+1} - 1$ including any asymptotes as dashed lines. State the x and y intercepts and any asymptotes.



4) Simplify the following:

a) $\log_8 16 + \log_8 4$

b) $\sec(\arcsin \frac{\sqrt{3}}{2})$

5) Solve the following equations:

a) $3\log_3(x+2)+1=4$

b) $e^{x+5}+2=8$

6) Given that $f(x)=4x^2+2$ and $g(x)=\sqrt{x-2}$, find the following:

a) $(f \circ g)(x)$

b) $(g \circ f)(x)$

c) $(f \circ g)(3)$

d) $(g \circ f)(0)$

7) Find the inverse of $f(x) = (\ln 2x) + 1$. State the domain of both $f(x)$ and its inverse function.

8) The half-life of uranium is 95 years. If we start with 100g of uranium:

a) How much would be left after t years?

b) How much would be left after 380 years?

c) How long until there is only 10 grams left?

Compute the following limits. If they do not exist, explain why.

9) $\lim_{x \rightarrow 2} x^2 + 3x - 2$

10) $\lim_{x \rightarrow -3} \frac{x^2 - 9}{x^2 + 5x + 6}$

11) $\lim_{x \rightarrow 2} \frac{\sqrt{x+2} - \sqrt{2x}}{x^2 - 2x}$

12) $\lim_{x \rightarrow 3} \frac{x-3}{|x-3|}$

There's one more on the other side.....

13) Show that $\lim_{x \rightarrow 0} x^3 \cos\left(\frac{1}{x}\right) = 0$