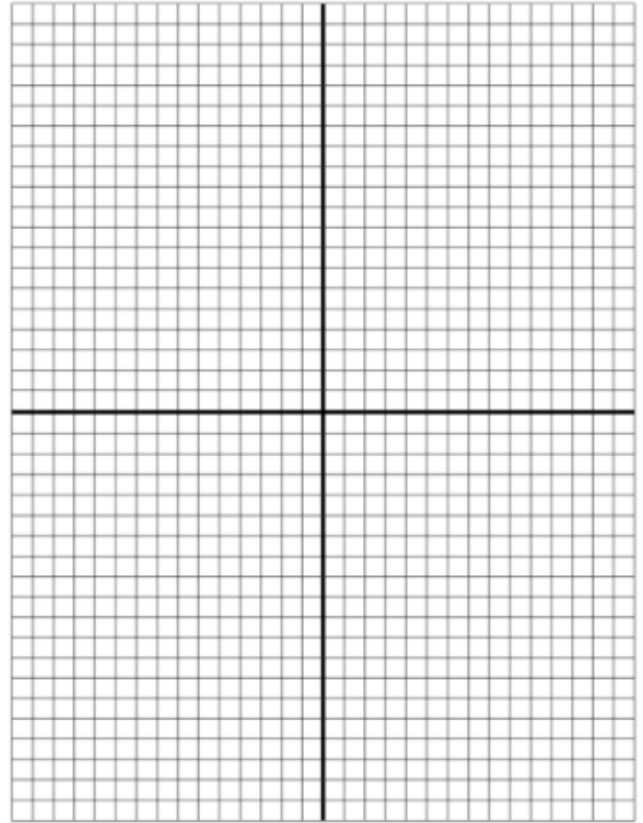
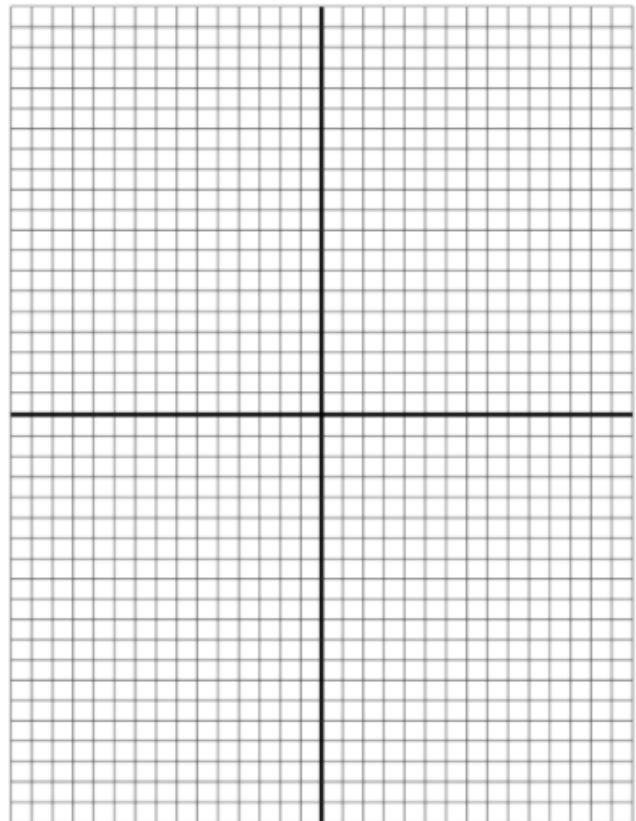


The 2 problems on this side will consist of part 1 of your exam. You will NOT be permitted to use a calculator for part 1. Upon submitting part 1, I will give you part 2. Part 2 allows a calculator.

- 1.) Graph $f(x) = 5^{x-2} + 4$. Find/state the domain, range, intercepts and asymptotes. Include intercepts and asymptotes on the graph.



- 2.) Graph $g(x) = -\log_2(x + 5) + 2$. Find/state the domain, range, intercepts and asymptotes. Include intercepts and asymptotes on the graph.



The following will consist of part 2 of your test. It will be given to you when you turn in part 1. You will have MUCH MORE SPACE so that you can complete these on the exam itself. Formulas in the box will be provided on your test.

Write each in logarithmic form. Do not solve.

1.) $6^{-2} = \frac{1}{36}$

2.) $e^{-12x} = 7$

Expand. Use all properties that apply.

5.) $\ln \frac{x^4 \sqrt{y}}{z^5}$

Write each in exponential form. Do not solve.

3.) $\log_5 x = -9$

4.) $\log 37 = x$

Use properties to condense to one term.

6.) $3 \ln(x - 2) - (2 \ln y + 7 \ln z)$

Solve. *Show ALL work in a neat, organized manner.* If it can't be solved mentally/algebraically (there's very few that can be solved this way), and has a regular log with a base other than 10, all work must be shown to receive ANY credit.

7.) $\log_{81} x = \frac{3}{4}$

8.) $\ln(x - 2) + \ln(2x - 3) = 2 \ln x$

9.) $2^{3x} = 15$

10.) $9 \ln \sqrt{x + 1} = 18$

11.) $-7 + 5 \log_2(x - 5) = 43$

12.) $\log_{2x} 40 = 4$

15.) $2^{x+4} = 5^x$

16.) $e^{2x} + 6 = 10$

17.) $e^{2x} - 5e^x + 6 = 0$

18.) $9^{2x} = 27^{3-4x}$

19.) $\log_7(x + 7) - \log_7 x = \log_7(x + 7)$

20.) $\log_8 3 + \log_8(x - 4) = \log_8 6$

Compound Interest:

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

Where A is the final amount, P is the initial investment, r is the interest rate, t is time, and n is the amount of compounding's per year

Continuous Compounding:

$$A = Pe^{rt}$$

Where A is the final amount, P is the initial investment, r is the interest rate, and t is time

** These formulas and descriptions above will be provided for you on your test exactly as-is **

23.) A total of \$1000 is invested at an annual interest rate of 6%. Find the balance after 5 years if it is compounded monthly. Round to 3 decimal places, if necessary.

24.) A total of \$1000 is invested at an annual interest rate of 7.5%. How many years will it take for your money to double if it is compounded continuously? Round to 3 decimal places, if necessary.