| Math 1113 | Exam $\#2$ | |
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Name: _____ GTID: _

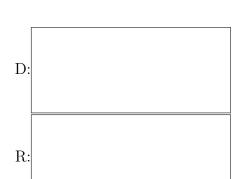
For the short answer problems on **this page** you do not need to show any work.

For everything else: Show all work and <u>BOX</u> your final answer for each problem. Answers with no work may receive partial or no credit. Simplify answers for full credit.

1a. (2 points) What is the domain and range of $y = 3(x-4)^2 - 5$?

1b. (2 points) What is the domain and range of $y = 2^{x-3} + 4$?

1c. (2 points) Write the equation for the function which is obtained from the graph of $y = 4^x$ after being transformed by shifting 2 units up and shifting 1 units left.







2. (5 points) Write in standard form (*i.e.*, vertex form): $y = 2x^2 - 16x + 22$

3. (5 points) Find the quotient: $(x^3 - x^2 - 10x + 6) \div (x + 3)$ *Hint: check your answer.* 4. (6 points) For this problem use the function $f(x) = \frac{x^2 - 4}{(3x - 1)(x + 1)}$.

Find the domain of y = f(x), the VA(s), the HA, the x-intercept(s), and the y-intercept.

| D: | |
|----------------|--|
| VA(s): | |
| HA: | |
| <i>x</i> -int: | |
| y-int: | |

5. (4 points) Evaluate: $\log_2(\sqrt{8})$

6. (4 points) Solve: $\log_3(2x+4) = 0$

7. (5 points) Evaluate: $\log_5\left(\frac{25x^2}{\sqrt{y}}\right)$, given $\log_5(x) = 3$ and $\log_5(y) = 10$.

8. (4 points) You deposit \$4,000 at 8% compounded quarterly for 6 years. How much will be in your account after 6 years?
Note: you must clearly set up the problem, but you do not need evaluate the expression.

9. (6 points) Solve: $\log_2(x+2) + \log_2(x+3) = 1$

10. (5 points) Sketch: $y = \log_2(x)$. Label any intercepts, label the axes and the curve, and identify and include a total of at least four points on your graph for full credit.