MATH 30 - Precalculus. Homework 7. Due Th. 04/11/2019. Professor Luis Fernández

NAME:_____

Write your answers in this sheet and in other sheets. Do your graphs in the axes provided or in graph paper. Please **STAPLE this one to your other sheets** if any.

1. Use a calculator to approximate the following numbers to 4 decimal places.

a) $2^{3.4} =$ **b)** $e^{1.5} =$ **c)** $6^{-\frac{1}{3}} =$ **d)** $\sqrt{3}^{\sqrt{2}} =$

e) $\log 12 =$ **f)** $\log \sqrt{5} =$ **g)** $\ln \frac{1}{5} =$ **h)** $\ln 469993 =$

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2. Find without using a calculator.

a) $\log_2 8 =$ **b)** $\log_3 \frac{1}{3} =$ **c)** $\log_6 \sqrt{6} =$ **d)** $\log_{102} 102^4 =$

e) $\log_8 2 =$ **f)** $\log_{27} \frac{1}{3} =$ **g)** $\log_5 1 =$ **h)** $\log_3(\log_8 2) =$

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3. Simplify each expression. Here a is a positive number.

a) $\log_a a^4 =$ **b)** $\log_a \frac{1}{a^7} =$ **c)** $\log_a a^{\frac{1}{5}} =$ **d)** $\log_a \sqrt[3]{a} =$

e) $2^{\log_2 7} =$ **f)** $a^{\log_a \frac{1}{5}} =$ **g)** $10^{\log \sqrt{4}} =$ **h)** $e^{\ln 3x^2} =$

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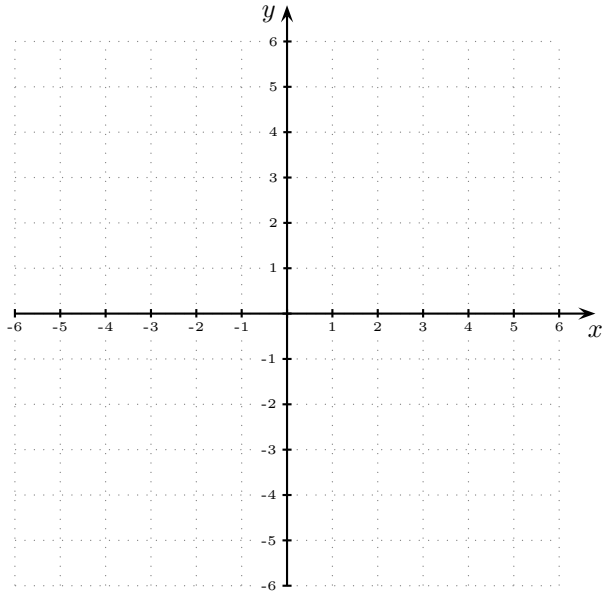
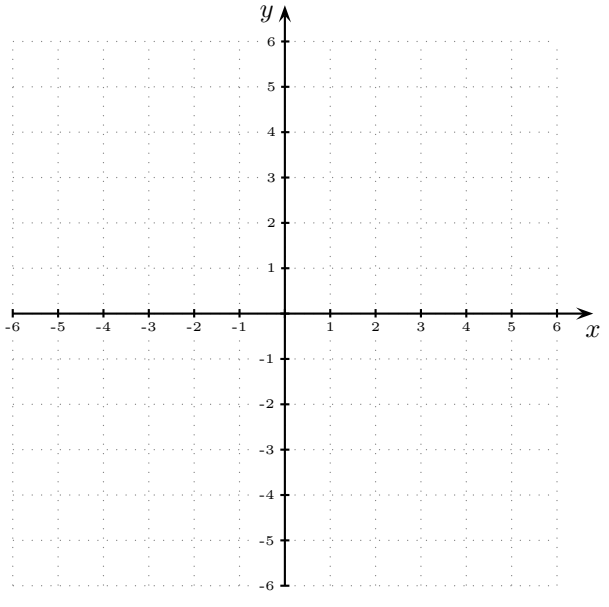
4. Graph the following functions in the axes provided (both in the same axes).

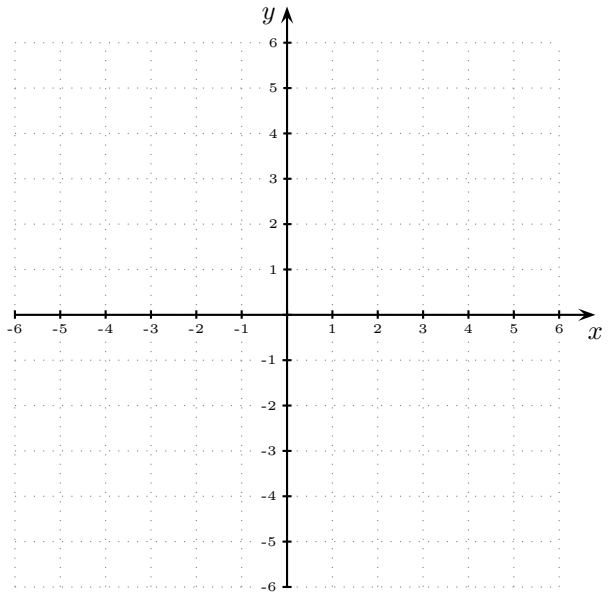
a) $f(x) = 2^x$ and $g(x) = \log_2 x$.



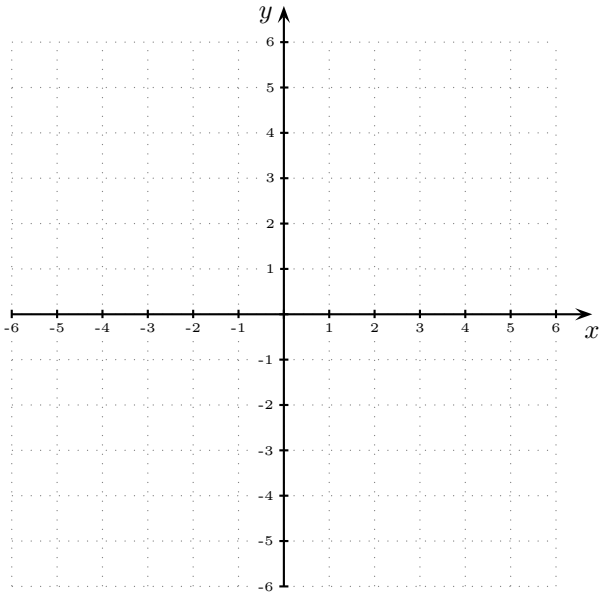
b) $f(x) = 2^{x-3} - 5$ and $g(x) = \log_2(x+5) + 3$.



c) $f(x) = \left(\frac{1}{2}\right)^x$ and $g(x) = \log_{\frac{1}{2}} x$.



d) $f(x) = 4 - 2^{x-3}$ and $g(x) = \log_2(4 - x) + 3$.



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5. Find the domain of the following logarithmic functions.

a) $f(x) = \log_4(x - 5)$

b) $g(x) = \ln(x + 5)^2$

c) $h(x) = \ln\left(\dfrac{x-2}{x+1}\right)$

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6. Find the inverse of the following functions.

a) $f(x) = 4e^{x+2} - 3$

b) $g(x) = 2 + \log_4(2x - 3)$

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7. Do exercises 1–4, 10–12, from section 4.3 (Right Triangle Trigonometry) of the text.