# IM 3 Chapter 7 Review 2

Name:_____ Per:_____ Date:_____

**Show ALL work in the space provided. Round to three decimal places.**

| | | |
|---|---|---|
| $y = b^x \Leftrightarrow x = \log_b y$ | $\log_b (mn) = \log_b m + \log_b n$ | $\log_b \left(\frac{m}{n}\right) = \log_b - \log_b n$ |
| $\log_b m^n = n \log_b m$ | $\log_b m = \frac{\log_c m}{\log_c b}$ | |
| $\log = \log_{10}$ | $\ln = \log_e$ | |

**1.** Write $\ln(3x+4) = (5y-6)$ in exponential form.

**2.** Write $6x+7 = 10^{8y-9}$ in logarithmic form.

**3.** Find the inverse of $7y+2 = 3\ln(4x-5)$.

**4.** Solve: $-7e^{3x-4} + 35 = 28$. Round to three decimal places.

**5.** Solve: $343^{5x} = 49^{4x-9}$.

**6.** Write the expression $\log_6 216 + \log_6 36 - \log_6 1296$ as a single logarithm then evaluate.

**7.** Graph $y=\log_8(x)$ and $y=\log_8(x+6)$ on the same graph. Sketch the asymptotes, and state the domain and range of $y=\log_8(x+6)$ and describe the translation.

Domain:

_____

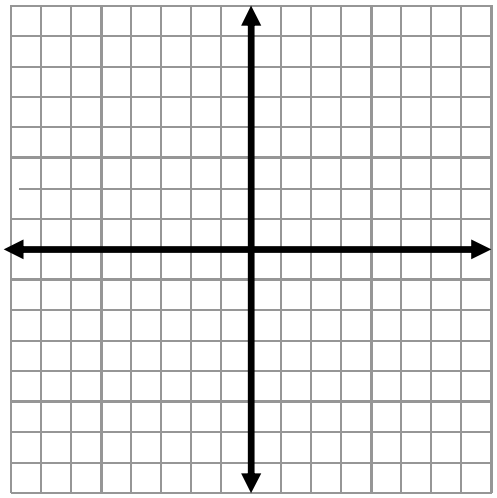
Range:

_____

Translation:

_____

_____



**8.** Describe the translation of the graph $f(x)=9^{x+3}-4$ to $g(x)=9^{x+8}-10$.

**9.** Solve $\ln 6+\ln x=6$. Give an exact answer and an approximation to 3 decimal places.

**10.** Expand $\log_4\left(4\sqrt[6]{x}\right)$. Simplify if possible.

**11.** Graph $y=7^x$ and $y=7^{x-3}+1$ on the same graph. Sketch the asymptotes, and state the domain and the range of $y=7^{x-3}+1$. Be precise; I need to clearly see the *y*-intercept of the parent function. Describe the translation of $y=7^x$ to $y=7^{x-3}+1$.

Domain:_____

Range:_____

Translation:_____

_____