

Test #4**Problem 1:** Consider the function $f(x) = 1 - 3x$.

- Show that $f(x)$ is “1-1”.
- Find inverse function of $f(x)$.
- Verify your answer in *b)* algebraically.

Problem 2: Consider $g(x) = e^{x+2} - 1$.

- Graph $g(x)$.
- Give equations of all asymptotes.
- Find x and y intercepts.
- What is domain of $g(x)$?
- What is range of $g(x)$?
- Evaluate $g(2)$ using your calculators.

Problem 3: Solve the following equation

$$5^{1-3x} = \frac{1}{25}.$$

Problem 4:

- Rewrite $5^x = 2$ in logarithmic form.
- Rewrite $\log_3 y = -2$ in exponential form.

Problem 5: Consider $h(x) = \ln(x + 3)$.

- Graph $h(x)$.
- Find x and y intercepts.
- What is domain of $h(x)$?
- What is range of $h(x)$?

Problem 6: Solve equation $3 \ln(x - 2) = 6$.**Problem 7:** Determine if the following is true or false in general.

- $e^2 e^4 = e^8$
- $\ln(x^2 - 4) - \ln(x + 2) = \ln(x - 2)$
- $(\log_2 x)^4 = 4 \log_2 x$
- $\log(10^3) = 3$
- $\log_3 x = \frac{\ln x}{\log_3}$.

Problem 8: Solve equation

$$2 \log_3 2x - \log_3 36 = 0.$$

Problem 9: Solve equation

$$\ln(5x - 3) - \ln(x + 1) = 2.$$

Problem 10: Solve equation

$$3^{2x} = 5^{(x+3)}.$$

Problem 11: A 150\$ investment has been compounded monthly. What amount results from the investment after a period of three years if the rate is 3.99%?**Problem 12:** The half-life of radioactive cobalt is 5.27 years. If 100 grams of radioactive cobalt is present now, how much will be present in twenty years?**Test #4****Problem 1:** Consider the function $f(x) = 1 - 3x$.

- Show that $f(x)$ is “1-1”.
- Find inverse function of $f(x)$.
- Verify your answer in *b)* algebraically.

Problem 2: Consider $g(x) = e^{x+2} - 1$.

- Graph $g(x)$.
- Give equations of all asymptotes.
- Find x and y intercepts.
- What is domain of $g(x)$?
- What is range of $g(x)$?
- Evaluate $g(2)$ using your calculators.

Problem 3: Solve the following equation

$$5^{1-3x} = \frac{1}{25}.$$

Problem 4:

- Rewrite $5^x = 2$ in logarithmic form.
- Rewrite $\log_3 y = -2$ in exponential form.

Problem 5: Consider $h(x) = \ln(x + 3)$.

- Graph $h(x)$.
- Find x and y intercepts.
- What is domain of $h(x)$?
- What is range of $h(x)$?

Problem 6: Solve equation $3 \ln(x - 2) = 6$.**Problem 7:** Determine if the following is true or false in general.

- $e^2 e^4 = e^8$
- $\ln(x^2 - 4) - \ln(x + 2) = \ln(x - 2)$
- $(\log_2 x)^4 = 4 \log_2 x$
- $\log(10^3) = 3$
- $\log_3 x = \frac{\ln x}{\log_3}$.

Problem 8: Solve equation

$$2 \log_3 2x - \log_3 36 = 0.$$

Problem 9: Solve equation

$$\ln(5x - 3) - \ln(x + 1) = 2.$$

Problem 10: Solve equation

$$3^{2x} = 5^{(x+3)}.$$

Problem 11: A 150\$ investment has been compounded monthly. What amount results from the investment after a period of three years if the rate is 3.99%?**Problem 12:** The half-life of radioactive cobalt is 5.27 years. If 100 grams of radioactive cobalt is present now, how much will be present in twenty years?