**PROBLEMS AND SOLUTIONS - LOGARITHMIC FUNCTIONS**

**Prepared by Ingrid Stewart, Ph.D., College of Southern Nevada**
**Please Send Questions and Comments to ingrid.stewart@csn.edu. Thank you!**

**PLEASE NOTE THAT YOU CANNOT ALWAYS USE A CALCULATOR ON THE ACCUPLACER - COLLEGE-LEVEL MATHEMATICS TEST! YOU MUST BE ABLE TO DO SOME PROBLEMS WITHOUT A CALCULATOR!**

**Problem 1:**

Find the following for $h(x) = \log x$.

a. Domain
b. Coordinates of the x-intercept
c. Coordinates of the y-intercept
d. Equation of the vertical asymptote

**Problem 2:**

Find the following for $f(x) = \log(-x)$.

a. Domain
b. Coordinates of the x-intercept
c. Coordinates of the y-intercept
d. Equation of the vertical asymptote

**Problem 3:**

Find the following for $f(x) = \log(x + 2) - 1$.

a. Domain
b. Coordinates of the x-intercept
c. Coordinates of the y-intercept. Round to 2 decimal places.
d. Equation of the vertical asymptote

**Problem 4:**

Find the following for $k(x) = \log x + 2$.

a. Domain
b. Coordinates of the x-intercept. Round to 2 decimal places.
c. Coordinates of the y-intercept
d. Equation of the vertical asymptote

**Problem 5:**

Graph $g(x) = \ln x$. Note we a discussing the natural logarithm "el en of x"!

a. Domain
b. Coordinates of the x-intercept
c. Coordinates of the y-intercept
d. Equation of the vertical asymptote

**Problem 6:**

Find the following for $p(x) = \log_2(x-1)+3$.

a. Domain
b. Coordinates of the x-intercept
c. Coordinates of the y-intercept
d. Equation of the vertical asymptote

---

SOLUTIONS

You can find detailed solutions below the link for this problem set!

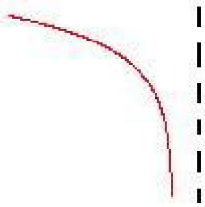
**Problem 1:**

The graph has the following shape:

- Its domain is $(0, \infty)$.
- The coordinates of the x-intercept are $(1, 0)$.
- **NO** y-intercepts.
- Equation of the Vertical Asymptote: $x = 0$

**Problem 2:**

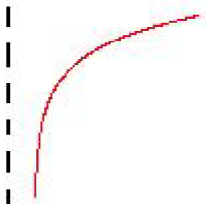
The graph has the following shape:



- Its domain is $(-\infty, 0)$.
- The coordinates of the x-intercept are ***(-1, 0)***.
- **NO** y-intercepts.
- Equation of the Vertical Asymptote*:* $x = 0$

**Problem 3:**

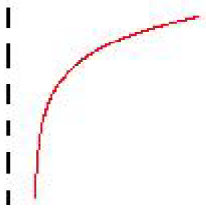
The graph has the following shape:



- Its domain is $(-2, \infty)$.
- The coordinates of the x-intercept are ***(8, 0)***.
- The coordinates of the y-intercept are approximately ***(0, -0.70)***.
- Equation of the Vertical Asymptote*:* $x = -2$

**Problem 4:**

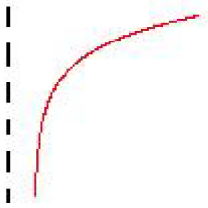
The graph has the following shape:



- Its domain is $(0, \infty)$.
- The coordinates of the x-intercept are ***(0.01, 0)***.
- **No** y-intercepts.
- Equation of the Vertical Asymptote*:* $x = 0$

**Problem 5:**

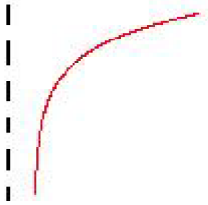
The graph has the following shape:



- Its domain is $(0, \infty)$.
- The coordinates of the x-intercept are $(1, 0)$.
- **No** y-intercepts.
- Equation of the Vertical Asymptote: $x = 0$

**Problem 6:**

The graph has the following shape:



- Its domain is $(1, \infty)$.
- The coordinates of the x-intercept are $(\frac{9}{8}, 0)$.
- **No** y-intercepts.
- Equation of the Vertical Asymptote: $x = 1$