PROBLEMS AND SOLUTIONS - LOGARITHMIC FUNCTIONS
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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 are 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 \((\frac{5}{6}, 0)\).
- No y-intercepts.
- Equation of the Vertical Asymptote: \(x = 1\)