

Name:

Practice Test #1

MATH 165

* Solve each equation: (Round to the nearest tenth if needed)

① $3^{x-3} = 5$

② $3 \log_2 x + 1 = 7$

③ $\ln(3x+4) - \ln(2x+1) = 5$

④ $9^{1-x} = 45$

⑤ $\log_2(x+3) = 5$

⑥ $\log_2(x-1) - \log_2(x+3) = \log_2\left(\frac{1}{x}\right)$

⑦ $\log_3(x) + \log_3(x-2) = 1$

⑧ Evaluate: $\log_{\frac{1}{2}} 8 + \log_2 \frac{1}{64} - \log_4 8 =$

Rewrite each as a single logarithm (Simplify)

⑨ $3 \log x - 2 \log y + \frac{1}{2} \log z =$

⑩ $12 \ln x + \ln y - 3 \ln z =$

⑪ $\log x + \log(x^2 - 4) - \log 15 - \log(x + 2) =$

Expand each logarithm:

⑫ $\log \frac{4x^2}{3y^3} =$

⑬ $\ln \left(\frac{xy}{2z} \right) =$

⑭ If you invest \$200 in an account that pays 4% annual interest compounded monthly. How long would it take before you had \$300?

⑮ The # of students infected with flu at A Tech " t " days after exposure is modeled by $P(t) = \frac{300}{1 + e^{(4-t)}}$

a) How many students were infected at time ($t=0$)

b) How many were infected after 3 days?

c) When will 100 students be infected?

⑯ What is the domain of each function?

a) $f(x) = \log_5(x-23)$

b) $g(x) = \log(x-1)^2$

* Find the partial fraction decomposition of each:

$$\textcircled{17} \frac{7x+3}{(x-1)(x+1)} =$$

$$\textcircled{18} \frac{3x+1}{x^3-2x^2-3x} =$$

$$\textcircled{19} \frac{x^3+2x+1}{x^2+3x-4} =$$

20) What is the center & radius of a circle with the equation:

$$(x+2)^2 + (y-5)^2 = 36$$

21) Write the equation of a circle given the center is at $(-3, 0)$ and the radius is $\frac{1}{2}$.

22) Write the equation of a parabola given the vertex is the point $(-3, 2)$ and it passes through the point $(1, -4)$.