

Q1. Given  $f(x) = \log_{\frac{1}{3}}(-x+9)+1$ .

- a) Find x-intercept and y-intercept of f.
- b) Find range and domain of  $f$ .
- c) Find equation of asymptote.
- d) Graph  $f$ .

Q2. Find the exact value of  $\log_{27} \frac{\sqrt[5]{9}}{81}$ .

**Q3. An airplane traveling 260 mph is descending at an angle of depression of  $10^\circ$  .  
How many miles will the plane descend in 3 minutes.**

$$\sin 10^\circ = 0.17, \cos 10^\circ = 0.98, \tan 10^\circ = 0.18$$

**Q4. Find the measure of supplement of angle  $100^\circ 25' 33''$ .**

**Q5. Solve  $7^x - 12(7)^{-x} = 4$**

**Q6. Write the following expression as single logarithm  $2 \log x^3 y - \frac{1}{2} \log y^4 z + 2$**