

Pre Calculus Algebra Essentials

Name _____ Time: 75 minutes

Logs and Indices

Answer ALL questions in the space provided. {60 marks}

1. Use your calculator to find the value of the following

(a) $\text{Log}_{10} 45$ [1]

(b) $\text{Log}_e 0.657$ [2]

(c) $\ln 35$ [1]

2. Express as a single logarithm

$\log 4 - \log 3 + \log 9$ [2]

3. Solve the following

(a) $9^{3x} = 27$ [3]

(b) $5^x = 9$

[3]

(c) $4^{x+1} = 5^{2x-3}$

[5]

4. Given that $32\sqrt{2} = 2^x$, find the value of x .

[3]

5. Solve the following equations

(a) $\log x + \log(x - 1) = \log(4x)$

[5]

(b) $\log_2(x - 2) + \log_2(x + 1) = 2$

[5]

7. We have \$10,000 to invest for 44 months. How much money will we have if we put the money into an account that has an annual interest rate of 5.5% and interest is compounded $A = P \left(1 + \frac{r}{m}\right)^{tm}$, $A = Pe^{rt}$

(a) Quarterly

[5]

(b) Continuously

[5]