

Name:

## QUIZ 4 - MATH IB HL

Evaluate/Simplify

1. (6%)  $\text{Log}_2\left(\sqrt{\frac{1}{8}}\right) =$

2. (7%)  $\text{Log}_{\sqrt{27}}\left(\frac{3}{\sqrt[4]{\sqrt{27}}}\right) =$

3. (7%)  
 $\text{Log}_3(4) - \text{Log}_3(2) - \text{Log}_3(6) =$

4. (7%)  $\text{Log}_3(\text{Log}_5(\sqrt[18]{25}))$

5. (6%)  $\text{Log}(0.0001) - \text{Log}(0.01) =$

6. (6%)  $2^{\frac{\log_2(8)-1}{3}} =$

7. (6%)  $\text{Ln}(e^{-1}) - \text{Ln}\left(\frac{e}{\sqrt[4]{e}}\right) =$

8. (15%) Solve:  $\text{Log}\left(\frac{1}{\sqrt{2x}}\right) - \text{Log}(\sqrt{2x}) = -1$

9. (20%) Let  $\log_{10}(P) = x$ ,  $\log_{10}(Q) = y$ ,  $\log_{10}(R) = z$ . Express in terms of  $x$ ,  $y$  and  $z$ .

$$\text{Log}_{10}\left(\frac{Q}{100 \cdot \sqrt[3]{P}}\right) =$$

$$\text{Log}_{10}\left(\frac{10}{P^2QR}\right) =$$

10. (20%) Given the equation:  $\text{Log}_4\left(\frac{x}{3}\right) - \text{Log}_2(x - 4) = -2$

- (5%) Change the base of the first logarithm to 2.
- (5%) Simplify the denominator of the first logarithm after the change of base.
- (10%) Continue to solve the equation (a quadratic equation should be obtained and solved).