

1.3/1.5 Exponential and Logarithms

Objectives:

- I can use properties of exponents
- I can use properties of logarithms

Simplify or Evaluate the following

$$x^2 \cdot x^4$$

$$\frac{x^7}{x^3}$$

$$\sqrt[5]{x^2}$$

$$\sqrt[8]{x^4}$$

$$8^{\frac{2}{3}}$$

$$\frac{a^3 b^{-2}}{b^3 a^{-4}}$$

$$e^3 \cdot e^x$$

$$e^{\ln x - 4}$$

Properties of Logarithms RS 15-20

$$15. \log_b y = x \quad b^x = y$$

$$17. \log_b x = \frac{\ln x}{\ln b} \text{ or } \frac{\log x}{\log b}$$

$$18. \log_b xy = \log_b x + \log_b y$$

$$19. \log_b \frac{x}{y} = \log_b x - \log_b y$$

$$20. \log_b x^r = r \log_b x$$

$$21. \log_b \sqrt[n]{x} = \frac{1}{n} \log_b x$$

Write the following as a sum or difference

$$\log(8xy^4)$$

$$\log_3 \left(\frac{9m^4}{\sqrt[3]{n}} \right)$$

Write the following as a single logarithm

$$\ln x^5 - 2\ln(xy)$$

$$\log(x-1) + \log(x+1) - 3\log x$$

Rewrite the following as a log or exponential equation

$$3^5 = 243$$

$$\log_4 \frac{1}{64} = -3$$

$$y = e^{x-5}$$

$$\ln(y-1) = \ln x + 2$$

1.3/1.5

HW 1.3 #33