PC 12 Session 26

Monday, April 25, 2022 7:51 AM

Pre-Calculus 12 Session 26
Tuesday, April 26, 2022

1. Last Day's Homework:
   - Textbook Practice: Section 8.2: pages 389-391, Practise 1 to 10 inclusive, 13 and 16.
   - Readings: Nothing new.
   - Hand-in Assignments and other things: The Chapter 8 Hand-in Assignment will be due in on Thursday, April 28. **The Chapter 8 Test will be on Thursday, April 28. It may not cover all of Chapter 8.**

2. Return of, and a few comments on, the Chapter 7 Test

3. More about Section 8.3: Laws of Logarithms

4. Section 8.4: Logarithmic and Exponential Equations

5. Section 9.1: Exploring Rational Functions using Transformations (maybe)

Homework: This depends on how far we get today.

Readings: Nothing new.

Practice from the Textbook to try:

Section 8.2: pages 389-391, Practise 1 to 10 inclusive, 13 and 16.
Section 8.3: pages 400-402, Practice 1a), c), 2a), c), 3a), c), 7a), c), e), 8a), c), 9a), c), 10, 11a), c), 13, 14, 16, 20b), d).
Section 8.4: pages 412-414, Practise 1, 2, 3, 4a), c), 5, 6, 7a), c), 8a), c), e), 9, 13, 16.
Section 9.1: pages 442-444, Practise 2a), c), 3c), d), 4a), c), 5a), c), 7b), d), 8, 9, 12, 16. (If we get this far)

Hand-in Assignments and other things:

The Chapter 8 Hand-in Assignment will be due in on Thursday, April 28. **The Chapter 8 Test will be on Thursday, April 28. It may not cover all of Chapter 8.**

Last Day : Laws of Logarithms

→ simplify log expressions

→ expand log expressions.

Section 8.4 Solving Logarithmic & Exponential Equations

In Ch. 7, we solved exponential equations that can written using a common base.

$2^{x-3} = 16^{2x+1}$ $\quad 2^{x+3} = (2^4)^{2x+1}$

$x+3 = 8x+4$

$-1 = 7x \quad x = -\frac{1}{7}$

What about this? $2^{x-3} = 13^{2x+1}$ You need to solve using logs.

There's also logarithmic equations

$\log_4 x = 3 \quad 4^3 = x \quad x = 64.$

$\log_4(x) = \log_4(2x-5)$

$x = 2x - 5$

$-x = -5$

$x = 5$

$\log_4 x = \frac{\log x}{\log 4}$

Solve the following equations:

$e^x = 63$ $\qquad 10^{(x+3)} + 5 = 105$

$\log(3x - 2) = 1$ $\qquad \ln(x+1)^2 = 2$

Screen clipping taken: 4/26/2022 10:32 AM

$10^{(x+3)} + 5 = 105$

$-5 \quad -5$

$10^{(x+3)} = 100$

$10^{(x+3)} = 10^2$

$x+3 = 2$

$x = -1$

$\log_{10}[10^{x+3}] = \log_{10} 100$

$x+3 = 2$

$\log_a a = 1$

$\log_{10}(3x-2) = 1$

$\log_{10}(3x-2) = \log_{10} 10$

$3x-2 = 10$

$3x = 12$

$x = 4$

$\log_{10} \square = 1$

$10^1 = \square$

$\ln(x+1)^2 = 2$

$\log_e (x+1)^2 = 2$

$\log_e (x+1)^2 = \log_e (e^2)$

$(x+1)^2 = e^2$

$x+1 = e$

$x = e-1$

$\frac{2}{2}\ln(x+1) = \frac{2}{2}\cdot 1$

$\ln(x+1) = 1$

$\ln(x+1) = \ln e^1$

$x+1 = e \qquad x = e-1$

$x^2 - 10x + 16 = 0$

$a=1 \quad b=-10 \quad c=16$

$ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

$$x = \frac{10 \pm \sqrt{(-10)^2 - 4(1)(16)}}{2(1)}$$

$$= \frac{10 \pm \sqrt{100-64}}{2} = \frac{10 \pm \sqrt{36}}{2} = \frac{10 \pm 6}{2}$$

$$= \frac{10 \pm \sqrt{100 - 64}}{2} = \frac{10 \pm \sqrt{36}}{2} = \frac{10 \pm 6}{2}$$

$$x = \frac{10+6}{2}, \frac{10-6}{2}$$

$$x = 8, \cancel{2}$$

reject.