MATH 1113 PRACTICE TEST 1 ANSWERS FALL 2014

 1. Find all asymptotes of 

 First note that the function cannot be reduced.

Vertical asymptotes:

 

 The vertical asymptotes are *x* = 4 and *x* = ­–4

Horizontal asymptote: Find the ratio of the leading terms: 

 The horizontal asymptote is 

 2. Find the slant asymptote of the graph of 

 Divide using long division:

 

Note that there is no need to write the last step shown in blue!

+

+

+

–

−

−

 The slant asymptote is 

 3. In Question 1 determine what happens to the value of as 

 For values just larger than 4 both numerator and denominator are positive, so

 .

 4. Find the intercepts for 

 *y*-intercept: Let 

 For *x*-intercepts set the numerator equal to zero

 

5. Solve: . Write your answer in interval notation. To get credit you must draw an appropriate sign diagram.

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7. Determine the accumulated balance if $40,000 is invested at an APR of 8.5% for 30 years compounded annually.

8. Determine the accumulated balance if $7,000 is invested at an APR of 5% for 7 years compounded continuously.

9. If *y* varies directly as *x*, and *y* = 12 when , find the value of *y* when .

10. 6. If *y* varies jointly as *u* and *t* = 12,  when  and , find the value of *y* when .

11. Light intensity varies inversely as the distance from the source. If the intensity of light 200 light years from a star is 2.8 lumens, what would be the intensity at a distance of 50 light years?

12 Write in exponential form: ln 7 = 1.9459….

 

13 Write in logarithmic form: 

 

14. Write in logarithmic form: 

 

15. Without using a calculator evaluate  for 

 Let 

 Then 

To work this type of problem without a calculator you need to write each side with the same base. You need to recognize that .

 

16. Use a calculator to evaluate . Round your answer to two decimal places.

Using the LOG key on you calculator you get log 45 = 1.653212514

 

17. Use a calculator and the change of base formula to evaluate . Round your answer to four decimal places.

Use the change of base formula: . In practice you use either the common log or the natural log because they are on your calculator.

 

18. Use the properties of logarithms to rewrite  as sum, difference and/or constant multiple of logarithms.

 

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20. Condense to the logarithm of a single quantity

 