Classwork 11
Intermediate Algebra MTH 35
Topic: Logarithm

Name: _____

Evaluate the expressions:

1. $\log_9 81$

ANSWER [ ]

2. $\log_2 16$

ANSWER [ ]

3. $\log_9 \sqrt{3}$

ANSWER [ ]

4. $2^{\log_2 7}$

ANSWER [ ]

5. $\log_5 \frac{1}{25}$

ANSWER [ ]

Use definition of logarithm to find x:

6. $\log_3 x = 2$

ANSWER $\square$

7. $\log_4 x = 2$

ANSWER $\square$

8. $\log_x 8 = 3/2$

ANSWER $\square$

9. $\log_2(2x - 1) = 3$

ANSWER $\square$

10. $\log_2 x + \log_2 3x = 4$

ANSWER $\square$

Classwork 12
Intermediate Algebra MTH 35
Topic: Logarithms

Name: _____

Evaluate the expression using Laws of Logarithms.

1. $\log_2 6 - \log_3 15 + \log_2 20$

2. $\log_4 16^{100} + \log_4 64$

3. $\ln(\ln e^{e^2})$

Use Laws of Logarithms to expand or combine the expressions.

4. (Expand) $\log_3 x\sqrt{y}z^2$

5. (Combine) $\ln(a+b) + \ln(a-b) - \ln c$

6. (Expand) $\log \dfrac{x^2y^3}{z^5w^4}$

Classwork 13
Intermediate Algebra MTH 35
Topic: Exponential and Logarithmic Equations

Name: _____

Solve the following equations.

1. $2^{1-x} = 4$

2. $3^{2x-1} = 9$

3. $e^{2x} = 7$

4. $e^{2x+1} = 200$

5. $5^{x} = 4^{x+1}$

6. $\log(x-4)=2$

7. $\log_3(2-x)=3$

8. $2\log x=\log 2+\log(3x-4)$

9. $\log_2 x\log_2(x-3)=2$

10. $\log_5(x+1)-\log_5(x-1)=2$

Classwork 13
Intermediate Algebra MTH 35
Instructor: Abhijit Champanerkar
April 13th 2015
Topic: Exponential and Logarithmic Equations

Name: _____

Solve the following equations.

1. $2^{1-x} = 4$

2. $3^{2x-1} = 9$

3. $e^{2x} = 7$

4. $e^{2x+1} = 200$

5. $5^x = 4^{x+1}$

6. $\log(x-4)=2$

7. $\log_3(2-x)=3$

8. $2\log x=\log 2+\log(3x-4)$

9. $\log_2 x\log_2(x-3)=2$

10. $\log_5(x+1)-\log_5(x-1)=2$

Classwork 14
Intermediate Algebra MTH 35
Instructor: Abhijit Champanerkar
April 13th 2015
Topic: Modeling with Exponential and Logarithmic functions

Name: _____

1. A certain bacteria population doubles every 4 hours. Initially there are 2000 bacteria in a colony.

   (a) Find a model for the bacteria population after t hours.

   (b) How many bacteria are in colony after 15 hours ?

   (c) When will the bacteria count reach a million ?

2. In a particularly bad zombie outbreak in Freaktown, the population of zombies was 100,000 in 2050, and 300,000 in 2055. Assuming that the zombie population grows exponentially,

   (a) Find a function that models the zombie population t years after 2050.

   (b) Find the time require for the population to double.

   (c) Predict the zombie population in 2075.

3. The half-life of strontium-90 is 28 years. How long will it take a 50-mg sample to decay to a mass of 32 mg.

4. After 3 days, a sample of radon-222 has decayed to 58% of its original amount.

   (a) What is the half-life of radon-222 ?

   (b) How long will it take the sample to decay to 20 % of its original amount ?