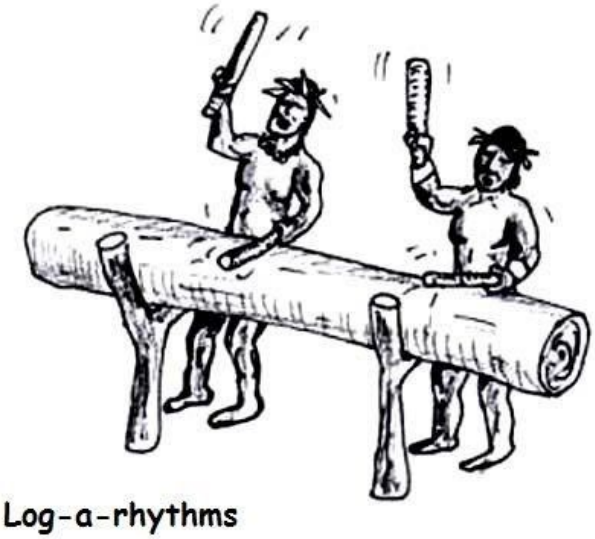
NAME _____

FOM 3

Unit 5: Exponentials and Logarithms



Date	Topic	Homework
October 26	• Exponential and logarithmic form • Solve logarithmic equations	worksheet 5.1
October 27	• Solve logarithmic equations using properties	worksheet 5.2
October 30	• Solve exponential equations	worksheet 5.3
October 31	• No School - Teacher Workday	
November 1	• Solve exponential equations with binomial exponents	worksheet 5.4
November 2	• Quiz!! • Graph exponential functions	worksheet 5.5
November 3	• Solve problems using exponential growth and decay	worksheet 5.6
November 6	• Solve problems using compound interest	worksheet 5.7
November 7	• Quiz!! • Solve problems using compound interest	worksheet 5.8
November 8	• Review for test	Exponents and Logarithms Review
November 9	• Test!!	

5.1 - Solve Logarithmic Equations

Solve each logarithmic equation.

1. $\log_5 x = 3$

2. $\log_4(3x + 11) = 3$

3. $\log_4(7x - 9) = \log_4(2x + 1)$

4. $\log_6 x = 3$

5. $\log_7 (3x + 7) = 4$

6. $\log (8x + 2) = \log(14)$

7. $\log (5x - 3) = 2$

8. $\log_3 9x = 4$

9. $\log_2(x^2) = \log_2(5x - 6)$

10. $\log (6x - 3) = 4$

5.2 - Solve Logarithmic Equations Using Properties

Solve each logarithmic equation. Remember to use the properties as needed!!

1. $\log_6 2 + \log_6 x = 1$

2. $\ln(4x - 1) = 3$

3. $\log_4(x + 2) - \log_4 3 = 2$

4. $\log(5x - 11) = 2$

5. $\ln 6x^5 - \ln x^3 = 1$

6. $\log_3(7x + 3) = \log_3(5x + 9)$

7. $\log_5 8 + \log_5(2x - 5) = 6$

8. $\ln x - \ln 3 = 4$

9. $\log(4x - 2) = \log(-5x + 5)$

10. $\log_3 4x + \log_3 3x = 6$

5.3 - Solving Exponential Equations

Solve each exponential equation.

1. $6^x = 14$

2. $19 = 2^x$

3. $7^{5x} - 1 = 12$

4. $8 \cdot 3^x = 40$

5. $20^{3x} = 11$

6. $7^{2x} + 3 = 37$

More Practice Solving Logarithmic Equations with Properties

7. $log_4 7 + log_4(2x + 1) = 3$

8. $log_2(6x - 9) = log_2(x + 17)$

9. $log\ (2x + 5) - log\ 7 = 4$

10. $ln\ (6x - 1) = 3$

5.4 - Solve Exponential Equations with Binomial Exponents

Solve each exponential equation.

1. $6^{x+3} = 22$

2. $e^{6x-1} = 2.9$

3. $12 = 6^{8x+5}$

4. $7 \cdot 2^{4x} + 6 = 41$

5. $5^{2x-5} = 18$

6. $4 = 7^{x-2}$

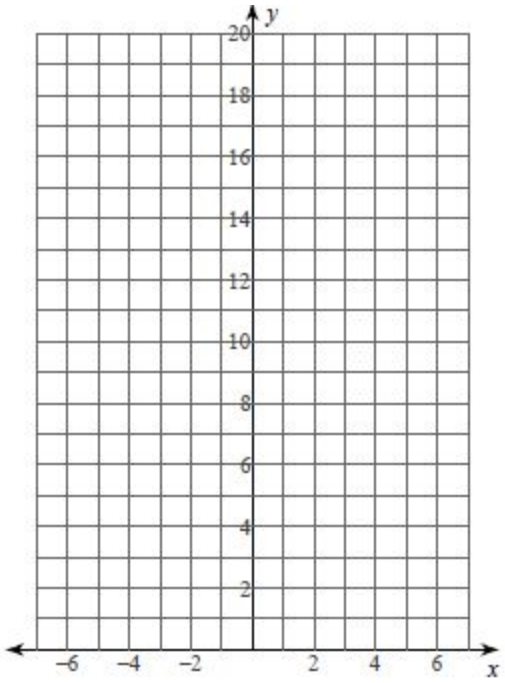
7. $12^{3x} - 10 = 80$

8. $x^2 + 5 = 21$

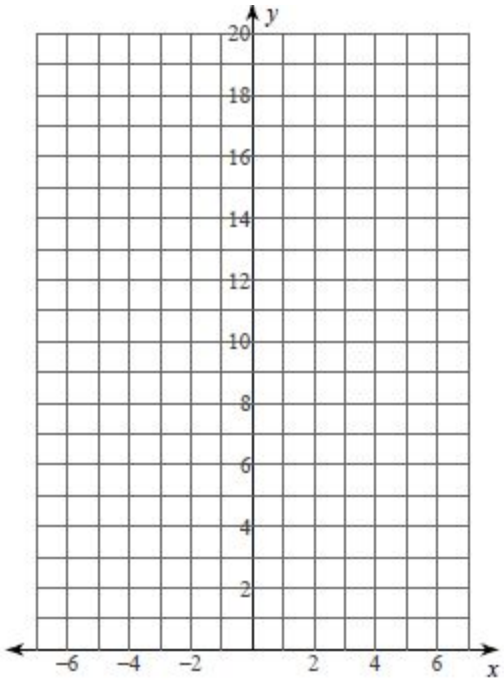
5.5 - Graph Exponential Functions

Graph each exponential function using a t-table.

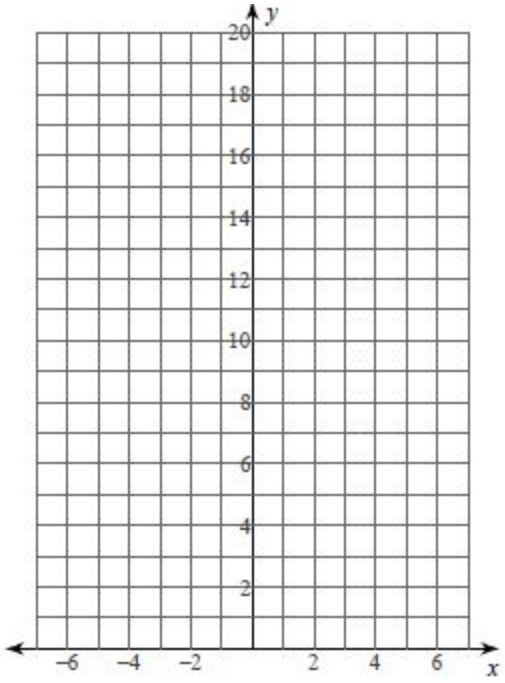
1. $y = 4 \cdot (2)^x$



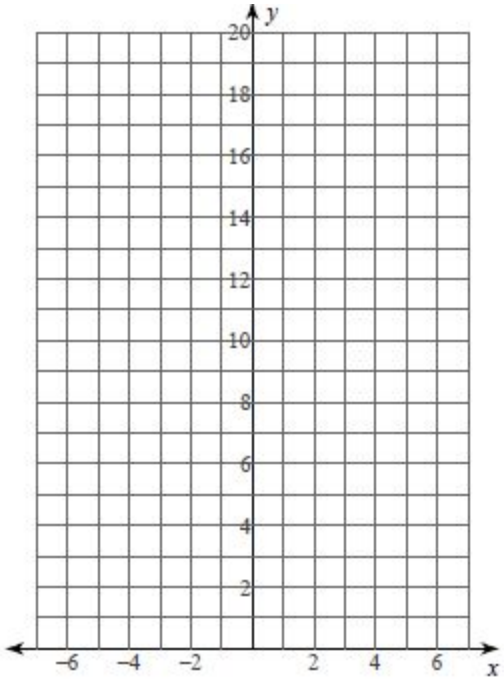
2. $y = 5 \cdot (3)^x$



3. $y = 4 \cdot \left(\frac{1}{2}\right)^x$



4. $y = 12 \cdot \left(\frac{1}{3}\right)^x$



5.6 - Exponential Growth and Decay

1. The number of bacteria present in a colony is 180 at 12 noon and the bacteria grows at a rate of 22% per hour. How many will be present at 8 p.m.?

2. Ryan's motorcycle is now worth $2500. It has decreased in value 12% each year since it was purchased. If he bought it four years ago, what did it cost new?

3. The cost of a High Definition television now averages $1200, but the cost is decreasing about 15% per year. In how many years will the cost be under $500?

4. A house purchased for $226,000 has lost 4% of its value each year for the past five years. What is it worth now?

5. A two-bedroom house in Nashville is worth $110,000. If it appreciates at 2.5% per year, when will it be worth $200,000?

6. Inflation is at a rate of 7% per year. Today Janelle's favorite bread costs $3.79. What would it have cost ten years ago?

5.7 - Compound Interest

1. Find the amount owed at the end 4 years if $4700 is loaned at a rate of 10% compounded semiannually.

2. Determine the amount that must be invested at 4.5% interest compounded monthly, so that $300,000 will be available for retirement in 15 years.

3. What amount will an account have after 20 years if $150 is invested at 6% interest compounded continuously?

4. What amount invested at 12% interest compounded continuously for 6 years will yield $530?

5. Determine the amount that must be invested at 3% interest compounded quarterly, so that $25,000 will be available in 9 years.

6. What principal invested at 8% compounded continuously for 3 years will yield $1250?

5.8 - More Compound Interest

1. Find the amount owed at the end 6 years if $4700 is loaned at a rate of 6% compounded monthly.

2. How long does it take $800 to triple if it is invested at 8% interest compounded quarterly?

3. What amount will an account have after 20 years if $150 is invested at 4.5% interest compounded continuously?

4. If $900 is invested at 8% interest compounded continuously, how long will it take before the amount is $1400?

5. If $2000 is invested at 3.5% interest compounded semiannually, how long will it take before the amount is $4300?

6. What amount invested at 12% interest compounded continuously for 6 years will yield $530?