Unit 2 Review - Exponential & Logarithmic Functions

Converting Between Logarithmic and Exponential Forms

Rewrite in Logarithmic Form

1. 1. $6^3 = 216$

2. $0.04 = 5^{-2}$

Rewrite in Exponential Form

3. $\ln 7 = 1.946$

4. $\log_3 9 = 2$

Evaluating Logarithms

5. $\log_2 8$

6. $\log 56$

7. $\ln 12$

Expanding the Logarithmic Expressions

8. $\log \frac{w^5 x}{yz^9}$

9. $\log_8 4ab^2$

10. $\log_2 (cd)^3$

Condense the Logarithmic Expressions

11. $\log_5 2 + \frac{1}{3}\log_5 k - 3\log_5 m$

12. $\frac{1}{2}\log_9 2 - \log_9 x - 3\log_9 3 + \log_9 y$

Solving Logarithmic Equations

8. $\log_3 (2x + 7) = 4$

9. $\ln (2x - 8) = 3$

10. $\log_x 16 = 2$

11. $\log_4 3x^2 + \log_4 2x = 4$

12. $\log_8 (6x - 4) = \log_8 (2x + 12)$

13. $\log x - \log(x - 21) = 2$

Solving Exponential Equations

15. $e^{3x} = 11$

18. $10^x = 4^{2x-3}$

16. $3^{2x} - 6 = 17$

19. $7^{x+3} = 40$

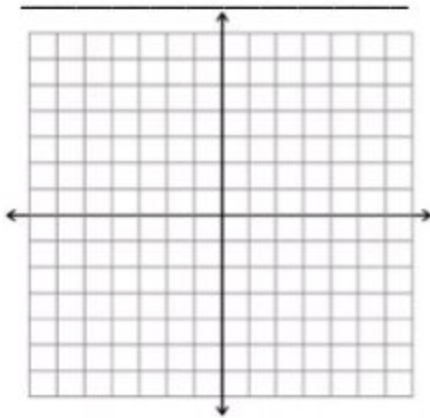## Graphing Exponential & Logarithmic Functions

20. $y = 3^x - 1$
Asymptote: _____
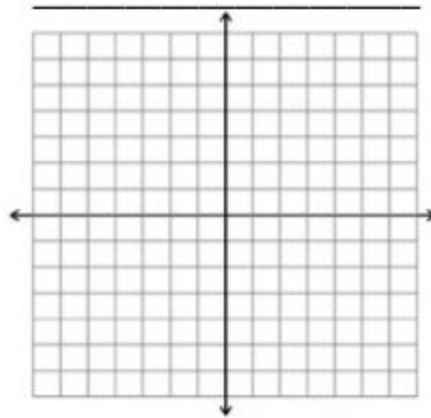Domain: _____
Range: _____
Transformation(s): _____
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21. $y = (2)^{x-2} + 2$
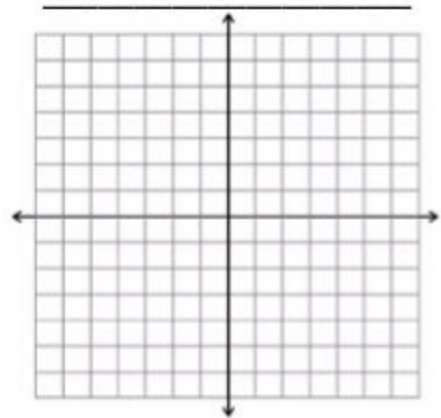Asymptote: _____
Domain: _____
Range: _____
Transformation(s): _____
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22. $y = \log_4(x + 1)$
Asymptote: _____
Domain: _____
Range: _____
Transformation(s): ____
_____

Mixed Applications Practice (Growth, Decay and Compound Interest)

23. How much money will be available in 7 years if $400 is invested at 3% interest compounded continuously?

24. The value of an iPod purchased for $300 decreases by 6% each year. How long until the iPod is worth $90?

25. How long will it take for your bank account to triple if the money is invested at 4% interest compounded monthly?

26. If a gallon of milk costs $3 now and the price is increasing by 10% each year, how long before milk costs $10 per gallon?

27. How much money must be invested at 6.5% interest compounded quarterly for $50,000 to be available in 7 years?

28. The number of bacteria present in a colony is 180 at 11 a.m. and the number of bacteria doubles every hour. How many will be present at 8 p.m.?

29. How long will it take to have $1400 if $900 is invested at 7% interest compounded continuously?