Math 3 Topic 5 In-Class Review CW

Write in logarithmic form.

1. $7^3 = 343$

2. $9^{-\frac{1}{2}} = \frac{1}{3}$

3. $e^3 \approx 20.1$

Write in exponential form.

4. $\log_4 64 = 3$

5. $\log_5 1 = 0$

6. $\log_v 35 = q$

Expand each expression.

7. $\ln \dfrac{7x^3 y}{22}$

8. $\log x^2 y^{-3}$

Condense each expression.

9. $5\log b - 3\log a$

10. $\dfrac{1}{2}\log_3 4 - \left(2\log_3 y + 4\log_3 x\right)$

Solve the following equations (round, when necessary, to three decimal places).

11. $\log 7x = -3$

12. $\log x - \log 4 = -1$

13. $3^{2x+5} = 47$

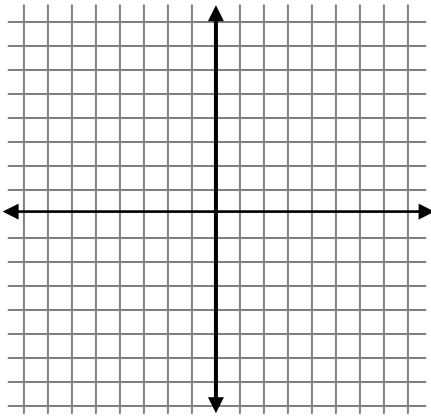14. $\log(2x+5) = \log(x+9)$

15. $\log x + 3 = 1$

16. $5^{4x} = 23$

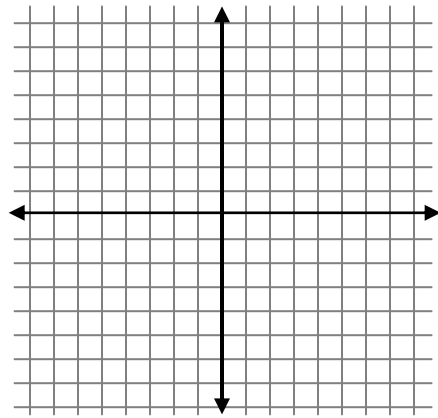17. $7^{x+2} = 29$

18. $\log_4 8 + \log_4 x = 5$

19. $4^{3x} = 8^{x-1}$

Graph the following equations

20. $y = log_3 (x - 2) + 1$

21. $f(x) = 2^{x+2} - 3$

22. Paul invests $6500 in an account with a 3.2% annual interest rate. How much will he have in the account at the end of 17 years if:

a) the interest is compounded continuously?

b) the interest is compounded weekly?

23. In 2020 the population of a small town is 3800 people. How many people will there be in the town in 2035 if:

a) the population is growing at a rate of 4.1% annually?

b) the population is decreasing at a rate of 2.2% annually?