Math 3 Name _____

Inverse Test Review Date_____ Per_____

Find a formula for $f^{-1}(x)$. Give the domain of $f^{-1}(x)$, including any restrictions "inherited" from f.

1. $f(x) = \frac{5x}{x-8}$

Expand each logarithm. Rewrite each expression as a sum, difference, or product of logs.

2. $\log \frac{2xy}{z}$

3. $log\ (3xyz^2)^3$

4. $\ln \frac{3y}{\sqrt[4]{x}}$

For the following exercises, condense each expression to a single logarithm using the properties of logarithms.

5. $\ln x - \ln y + \ln z + \ln 3$

6. $3[\ln(x-2) + 2\ln(x+1) - 5\ \ln(x-1)]$

Find the exact solution to the equation.

7. $\log_{10}(x-3) = -1$

8. $9\ln(x-5) = 1$

9. $9^{7x} = 81$

10. $100\left(\frac{1}{5}\right)^{\frac{x}{2}} = 4$

Solve the equation.

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

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

Find an approximate solution to the equation. Round to 3 Decimal places.

13. $2^x = 17$

14. $e^{-0.15t} = 0.22$

15. $6\ln(x + 2.8) = 9.6$

Use your calculator to solve the equation between $0 \le \theta < 360$. Round your answers to the nearest tenth. You should have 2 answers.

16. $\cos\theta = -0.8.74$

17. $\sin\theta = 0.621$

Math 3 Name _____

Inverse Test Non – Calculator Review Date_____ Per_____

Evaluate the logarithm

1. $\log_4 256$

2. $\log_6 \left(\frac{1}{36}\right)$

3. $\log_7 7^8$

Find the **exact value** of the function.

4. $\cos \frac{17\pi}{6} =$

5. $\tan 690° =$

6. $\sin 630° =$

7. $\sin (-150)° =$

8. $\cos \frac{-5\pi}{4} =$

9. $\tan -\frac{3\pi}{2}$

Find the exact value of the expression in **radians and degrees**.

10. $\sin^{-1}\left(\frac{1}{2}\right)$

11. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

12. $\tan^{-1}(-\sqrt{3})$

13. $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

Find the exact value given the following information. Give your answer in radians or degrees.

14. $\cos^{-1}\left(\tan\frac{\pi}{4}\right)$

15. $\sin\left(\cos^{-1}-\frac{1}{2}\right)$

16. $\sin^{-1}\left(\cos\frac{2\pi}{3}\right)$

Use Pythagorean Theorem to find the exact value.

17. $\sin\left(\tan^{-1}\frac{4}{3}\right)$

18. $\sin\left(\cos^{-1}\left(-\frac{1}{2}\right)\right)$

Solve each equation between $0 \le \theta < 360$

19. $4\sin\theta + 2 = 2$

20. $\sin 3\theta = -\frac{1}{2}$

21. $sin^2\theta - 2\sin\theta + 1 = 0$

22. $tan^2\theta + \tan\theta = 0$

23. $-3\tan\theta + 1 = 4$

24. $4sin^2\theta - 1 = 2$