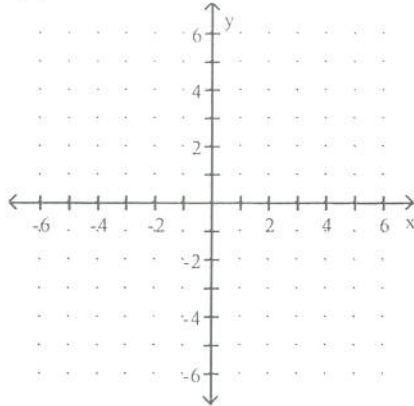
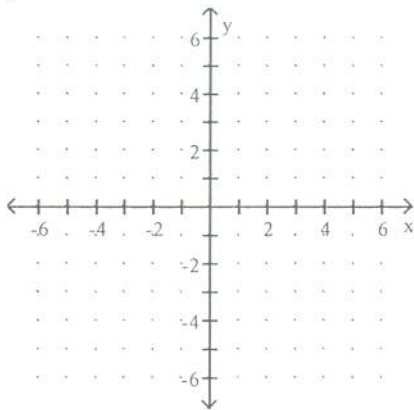


Graph the function.

1.  $f(x) = 4(x - 3)$



2.  $y = 3^x + 4 + 1$



Write the equation of the graph in its final position.

3. The graph of  $y = e^x$  is translated 6 units to the right and then 8 units upward.

Solve the problem.

4. An initial investment of \$1000 is appreciated for 6 years in an account that earns 5% interest, compounded annually. Find the amount of money in the account at the end of the period.

Find the value of the logarithmic function.

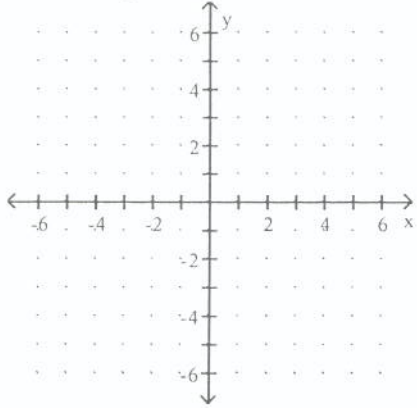
5.  $\log_4 64$

6.  $\log_7 \left( \frac{1}{49} \right)$

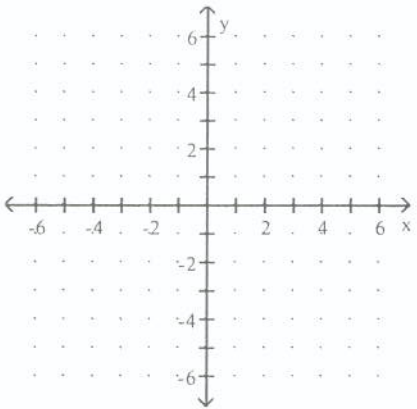
7.  $\ln 1$

Graph the function.

8.  $f(x) = \log_2(x - 2)$



9.  $f(x) = \log_2(-x)$



Find the domain of the function.

10.  $f(x) = 3 \log_5(x)$

Write the equation of the graph in its final position.

11. The graph of  $y = \ln(x)$  is translated 4 units to the right and then 5 units upward.

Expand

12.  $\log_{19} \left( \frac{8\sqrt[3]{15}}{n^2m} \right)$

Solve the equation. Give an exact solution.

13.  $\log(x + 18) = 0$

14.  $\log(x + 3) = 1 - \log x$

Solve the equation.

15.  $5e^{4x} - 5 = 15$

Find the exact value of the following expression without using a calculator.

16.  $\sin\left(\frac{7\pi}{4}\right)$

17.  $\cos\left(-\frac{7\pi}{6}\right)$

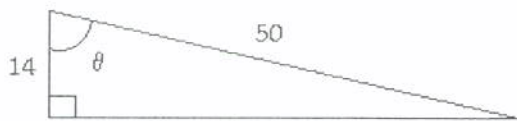
18.  $\tan(60^\circ)$

Solve the problem.

19. Find  $\sin(\alpha)$ , given that  $\cos(\alpha) = \frac{2}{3}$  and  $\sin(\alpha) > 0$

Find the exact value of the indicated trigonometric function for the given right triangle.

20.



$\sec \theta$

Prove that the equation is an identity.

21.  $\tan x \csc x - \sec^2 x \cos x = 0$

22.  $\frac{\csc x}{\cot x} - \frac{\cot x}{\csc x} = \frac{\sin x}{\cot x}$

Find all real numbers that satisfy the equation.

23.  $\sin x = \frac{\sqrt{2}}{2}$

Find all real numbers in the interval  $[0, 2\pi)$  that satisfy the equation.

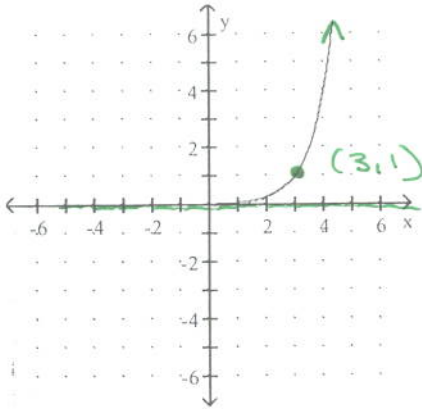
24.  $2 \sin x \cos x + \cos x = 0$

25.  $\cos^2 x + 2 \cos x + 1 = 0$

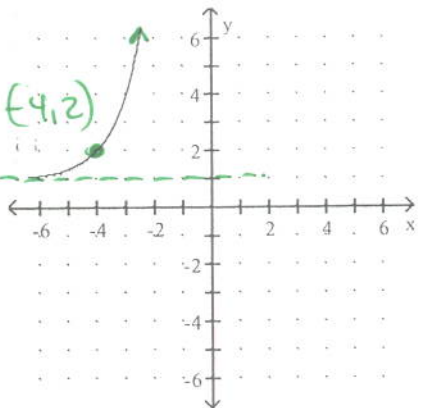
Answer Key

Testname: MAT 107 TEST 2 REVIEW

1.



2.



3.  $y = e^{x-6} + 8$

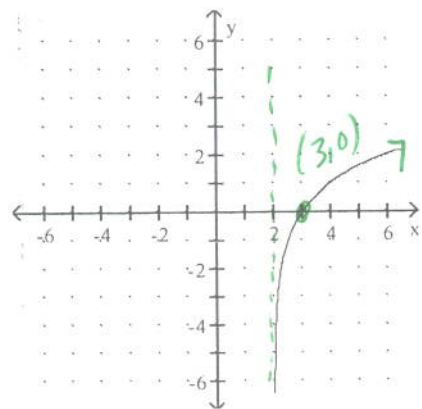
4. \$1340.10

5. 3

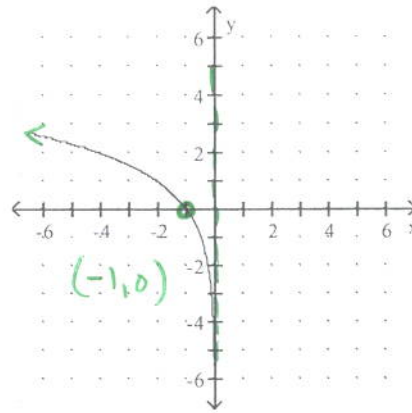
6. -2

7. 0

8.



9.



10.  $(0, \infty)$

11.  $y = \ln(x - 4) + 5$

12.  $\frac{1}{8} \log_{19}(15) - 2 \log_{19}(n) - \log_{19}(m)$

13. -17

14. 2

15.  $\left(\frac{\ln 3 + 5}{4}\right)$

16.  $-\frac{\sqrt{2}}{2}$

17.  $-\frac{\sqrt{3}}{2}$

18.  $\sqrt{3}$

19.  $\frac{\sqrt{5}}{3}$

20.  $\frac{25}{7}$

21.  $\tan x \csc x - \sec^2 x \cos x = \frac{\sin x}{\cos x} \cdot \frac{1}{\sin x} - \frac{1}{\cos^2 x} \cdot \cos x$

$$= \frac{1}{\cos x} - \frac{1}{\cos x}$$

$$= 0$$

22.  $\frac{\csc x}{\cot x} - \frac{\cot x}{\csc x} = \frac{\csc x \cdot \csc x - \cot x \cdot \cot x}{\cot x \csc x}$

$$= \frac{\csc^2 x - \cot^2 x}{\cot x \csc x}$$

$$= \frac{1}{\cot x \csc x}$$

$$= \frac{1}{\cot x} \cdot \frac{1}{\csc x}$$

$$= \frac{1}{\cot x} \cdot \sin x$$

$$= \frac{\sin x}{\cot x}$$

Pythagorean identity

23.  $\left\{x \mid x = \frac{\pi}{4} + 2n\pi, \text{ or } x = \frac{3\pi}{4} + 2n\pi\right\}$

24.  $\left\{\frac{\pi}{2}, \frac{7\pi}{6}, \frac{3\pi}{2}, \frac{11\pi}{6}\right\}$

25.  $\{\pi\}$