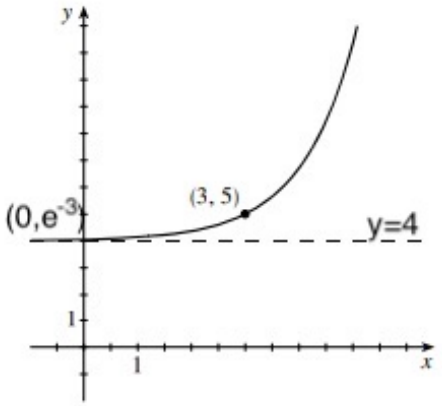
MATH 1022 REVIEW PROBLEMS FOR TEST 2 Fall 2023

Text: **James Stewart**, *Precalculus Mathematics for Calculus*, 7th Edition, Cengage learning.

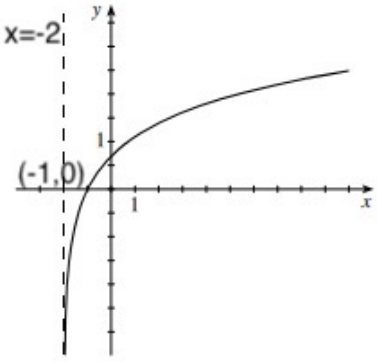
Below are answers to problems that are not provided in the book.

4.1:
26) I

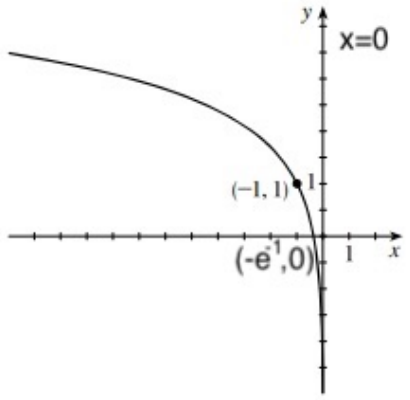
4.2:
14) $f(x) = e^{x-3} + 4$. The graph of f is obtained by shifting the graph of $y = e^x$ to the right 3 units. rand then upward 4 untis. Domain: $(-\infty, \infty)$. Range; $(4, \infty)$. Asymptote: $y = 4$.



4.3:
32a) $e^{\ln\sqrt{3}} = \sqrt{3}$
32b) $e^{\ln(\frac{1}{\pi})} = \frac{1}{\pi}$
32c) $10^{\log 13} = 13$
58) II
64) The graph of $g(x) = \ln(x + 2)$ is obtained from that of $y = \ln x$ by shifting to the left 2 units. Domain: $(-2, \infty)$. Range: $(-\infty, \infty)$. Vertical asymptote: $x = -2$.



70) The graph of $y = 1 + \ln(-x)$ is obtained from that of $y = \ln x$ by reflecting it about the y-axis and then shifting it upward 1 unit. Domain: $(-\infty, 0)$. Range: $(-\infty, \infty)$. Vertical asymptote: $x = 0$.



4.4

18) -2
30) $\frac{1}{2}(\ln a + \ln b)$
38) $3\log y - \frac{1}{2}\log 2 - \frac{1}{2}\log x$
40) $2\log_a x - \log_a y - 3\log_a z$
54) $\log_5(x + 1)$

4.5:

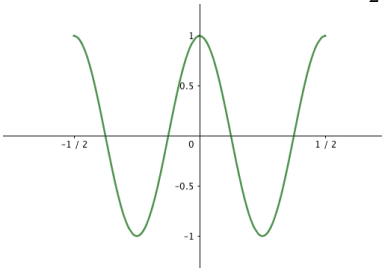
6) 1
40) $x = \ln 3$
52) $x = 1$
56) $e - 2$
66) $\dfrac{-1 + \sqrt{9 + 4e}}{2}$
68) $x = 3$

Chapter 4 Review:

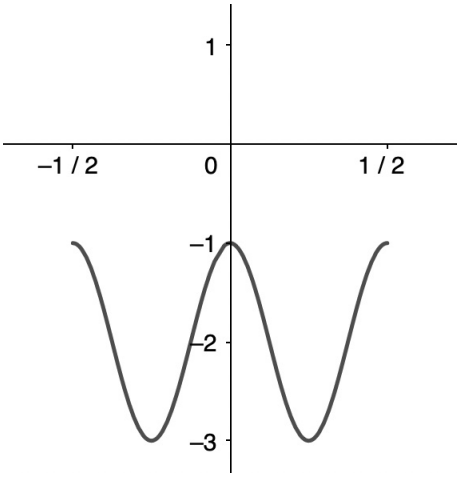
66) No solution since $x = \dfrac{1}{2}$ is not in the domain of $\ln(x - 2)$ or $\ln(5x - 7)$
70)$x = 3$

5.3:

22) Amplitude 1 and period $\frac{1}{2}$



32) $y = -2 + \cos 4\pi x$ has amplitude 1 and period $\frac{1}{2}$.



48) $y = 2\cos(2x)$

6.1

38) Not coterminal

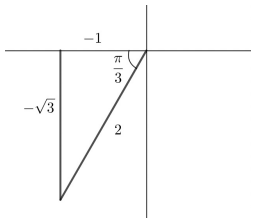
6.2

42) The other angle is $\frac{\pi}{3}$

6.3

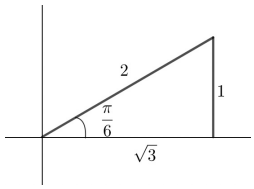
2) quadrant, positive, negative, negative

26)



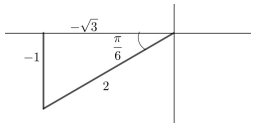
$\cos \frac{4\pi}{3} = -\frac{1}{2}$

28)



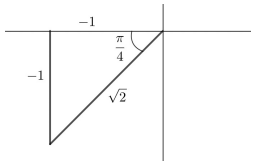
$\cos(-\frac{11\pi}{6}) = \frac{\sqrt{3}}{2}$

30)



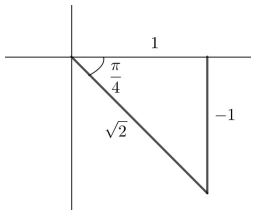
$\sec \frac{7\pi}{6} = -\frac{2}{\sqrt{3}}$

32)



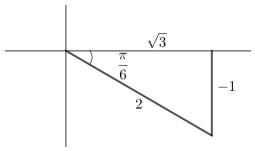
$\csc \frac{5\pi}{4} = -\sqrt{2}$

34)



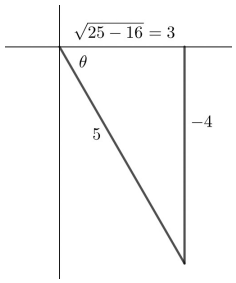
$\cos\frac{7\pi}{4} = \frac{1}{\sqrt{2}}$

36)



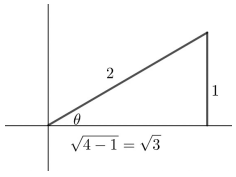
$\sin\frac{11\pi}{6} = -\frac{1}{2}$

47)



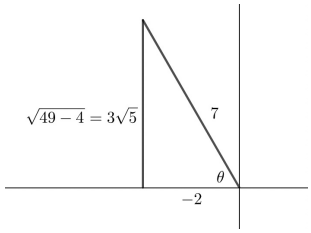
$\sin(-\theta) = \frac{4}{5}$, $\cos(-\theta) = \frac{3}{5}$, $\sin(\theta + 2\pi) = -\frac{4}{5}$, $\cos(\theta + 2\pi) = \frac{3}{5}$, $\sin(\frac{\pi}{2} - \theta) = \frac{3}{5}$, and $\cos(\frac{\pi}{2} - \theta) = -\frac{4}{5}$

51)



$\sin(-\theta) = -\frac{1}{2}$, $\cos(-\theta) = \frac{\sqrt{3}}{2}$, $\sin(\theta + 2\pi) = \frac{1}{2}$, $\cos(\theta + 2\pi) = \frac{\sqrt{3}}{2}$, $\sin(\frac{\pi}{2} - \theta) = \frac{\sqrt{3}}{2}$, and $\cos(\frac{\pi}{2} - \theta) = \frac{1}{2}$

53)



$\sin(-\theta) = -\frac{3\sqrt{5}}{7}$, $\cos(-\theta) = -\frac{2}{7}$, $\sin(\theta + 2\pi) = \frac{3\sqrt{5}}{7}$, $\cos(\theta + 2\pi) = -\frac{2}{7}$, $\sin(\frac{\pi}{2} - \theta) = -\frac{2}{7}$, and $\cos(\frac{\pi}{2} - \theta) = \frac{3\sqrt{5}}{7}$

Chapter 6 Review:

58) $\sqrt{3}$

7.1:

12) $\sec\theta$