1. The value of a new SUV can be modeled by the equation \( V = 40,000(0.75)^t \) and is depreciating in value where \( t \) is the number of years since purchase.

   a. Find the value of the SUV when purchased.

   b. Find the value after 4 years.

2. Use the appropriate formula in Problem #2.

   \[ A = P \left(1 + \frac{r}{n}\right)^{nt} \quad \text{and} \quad A = Pe^{rt} \]

Suppose very rich and very eccentric great Aunt Sofia Maria deposited $10,000 into an account the day that you were born. Find the amount in that account on your 21st birthday, if the interest rate was 2% and the interest was compounded,


   b. Continuously.
3. Evaluate the logarithm without a calculator:

   a. \( \log_2 8 = \)
   
   b. \( \log_\pi 1 = \)

4. Use the change of base formula to approximate the logarithm, and round to three decimal places.

   a. \( \log_3 20 \approx \)
   
   b. \( \log_{\frac{1}{2}} 5 \approx \)
5. Use the properties of logarithms to write \textit{(expand)} the expression as a sum, difference and/or multiple of logarithms.

\[
\ln\left( \frac{\sqrt{x^2 + 1}}{x^2} \right)
\]

6. Use the properties of logarithms to write \textit{(condense)} the expression as the logarithm of a single quantity.

\[
2 \ln(x) + \frac{1}{3} \ln(x + 1)
\]
7. Solve the exponential equation for $x$:

$2e^{x-4} - 1 = 0$

Leave your answer in terms of logarithms.

8. a. Draw the angle in standard position and convert the angle to degree measure.

$\theta = \frac{5\pi}{3}$

\[\theta = \text{°}\]

b. Draw the angle in standard position and convert the angle to degree measure.

$\theta = -\frac{5\pi}{6}$

\[\theta = \text{°}\]
9. a. Draw the angle in standard position and convert the angle to radian measure

$$\theta = -150^\circ$$

b. Draw the angle in standard position and convert the angle to radian measure

$$\theta = 720^\circ$$

10. Label the right triangle to find $\tan A$, given $\sin A = \frac{5}{13}$. 

\[
\begin{align*}
\text{Right Triangle} & \\
& \\
& \\
\end{align*}
\]
11. Find \( \theta \), \( 0^\circ < \theta < 90^\circ \), in degrees, for each equation. Do not use a calculator.

a. \( \sin \theta = \frac{\sqrt{3}}{2} \)

b. \( \csc \theta = \sqrt{2} \)

12. Find \( \theta \), \( 0 < \theta < \frac{\pi}{2} \), in radians, for each equation. Do not use a calculator.

a. \( \tan \theta = \frac{\sqrt{3}}{3} \)

b. \( \sec \theta = \sqrt{2} \)
13. Find $\sin \theta$ of the angle $\theta$ whose terminal side passes through the point $(2, -1)$.

$\sin \theta =$

14. Evaluate the trigonometric function without using a calculator:

a. $\sin 135^\circ =$  

b. $\cos 300^\circ =$
15. Evaluate the trigonometric function without using a calculator:

a. \( \tan \frac{4\pi}{3} = \)

b. \( \sin \frac{7\pi}{6} = \)

16. If possible, evaluate the trigonometric function of the quadrant angle.

a. \( \tan \frac{3\pi}{2} = \)

b. \( \cos 270^\circ = \)
17. Find two solutions in degrees \((0^\circ \leq x < 360^\circ)\) of the equation: \(\tan x = -1\)

18. Find two solutions in radians \((0 \leq x < 2\pi)\) of the equation: \(\sin x = \frac{1}{2}\)