1. Evaluate the expressions.
   a) \((\frac{36}{25})^{3/2}\)
   b) \((\frac{64}{27})^{-2/3}\)
   c) \(\log(100)\)
   d) \(\log(1)\)
   e) \(\log_6(27)\)
   f) \(\log_{16}(8)\)
2. Solve the equation.
   a) \(\log_3(5x - \frac{26}{9}) = -2\)
   b) \(\log(3x - \frac{9}{2}) = 0\)
   c) \(3^{2x^2+x-4} = \frac{1}{27}\)
3. Evaluate the trigonometric expression.
   a) \(\arcsin(-\frac{1}{2})\)
   b) \(\arccos(-\frac{\sqrt{3}}{2})\)
   c) \(\arccos(0)\)
   d) \(\arcsin(-1)\)
4. Evaluate the trigonometric expression.
   a) \(\sin(\arccos(\frac{1}{2}) + \arccos(\frac{\sqrt{2}}{2}))\)
   b) \(\cos(\arccos(-\frac{\sqrt{3}}{2}) - \arcsin(-\frac{\sqrt{3}}{2}))\)
   c) \(\tan(\arccos(\frac{\sqrt{3}}{2}) - \arcsin(\frac{1}{2}))\)
5. Solve the equation in the interval \(0 \leq x < 2\pi\).
   a) \(4\sin^2(x) + \sin(x) + 1 = 64\)
   b) \(8\tan^2(x) = 2\)
   c) \(\log_3(2\sin x) = \frac{1}{2}\)
   d) \(\log_3(\sqrt{3}\tan x) = 0\)
6. Evaluate the trigonometric expression by applying a half-angle identity.
   a) \(\sin(22.5^\circ)\)
   b) \(\cos(112.5^\circ)\)
7. Evaluate \(\sin(\frac{B}{2})\) and \(\cos(\frac{B}{2})\) from the given expression.
   a) \(\sin(B) = \frac{5}{13}\) and \(\frac{\pi}{2} < B < \pi\)
   b) \(\tan(B) = \frac{4}{3}\) and \(\pi < B < \frac{3\pi}{2}\)
   c) \(\sec(B) = -\frac{25}{24}\) and \(\frac{\pi}{2} < B < 2\pi\)
   d) \(\csc(B) = -\frac{17}{12}\) and \(\pi < B < \frac{3\pi}{2}\)
8. Let \(p(x) = 6x^3 - 5x^2 - 3x + 2\).
a) Verify $p\left(\frac{1}{2}\right) = 0$.

b) Apply long division to factor $p(x)$ completely.

c) Solve $p(x) = 0$.

9. Let $p(x) = 4x^3 + 11x^2 + 5x - 2$.

a) Verify $p\left(\frac{1}{2}\right) = 0$.

b) Apply long division to factor $p(x)$ completely.

c) Solve $p(x) = 0$.

10. Solve the equation for all solutions in the interval $0 \leq \theta < 2\pi$.

   a) $\cot^2(\theta) - \csc(\theta) = 1$
   
   b) $2\sin^2(\theta) = 1 - \cos(\theta)$
   
   c) $\tan^2(\theta) - \sec(\theta) - 1 = 0$

11. Plot the points $A(0, 0)$ and $B(\sqrt{2} - \sqrt{2}, 0)$.

    Then plot a point $C$ in Quadrant I that makes angle $\angle BAC = 37.5^\circ$ and $\angle ABC = 120^\circ$.

    a) Determine the length $AC$.
    
    b) Find an equation of the line containing $B$ and $C$.

12. Plot the points $A(1, 3)$ and $B(2, 3)$.

    Then plot a point $C$ in Quadrant I that lies above the line containing $A$ and $C$.

    Assume the length $AC = 2$, and we have angle $\angle BAC = 22.5^\circ$.

    a) Determine the distance $BC$.
    
    b) Find an equation of the line containing $A$ and $C$. 