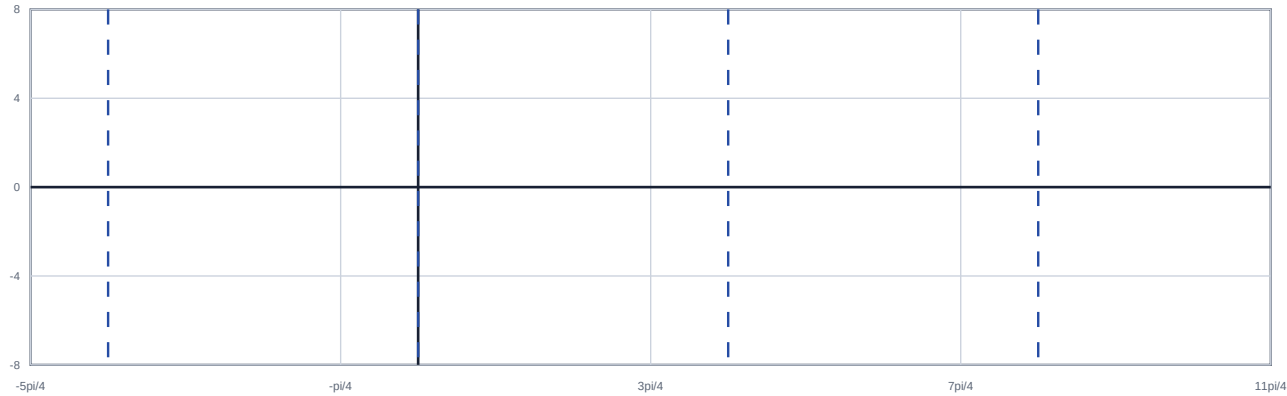


Graphs of Tangent, Cotangent, Secant, and Cosecant

Mark every vertical asymptote, zero or vertex, and draw each branch without crossing an asymptote. State the period and domain exclusions.

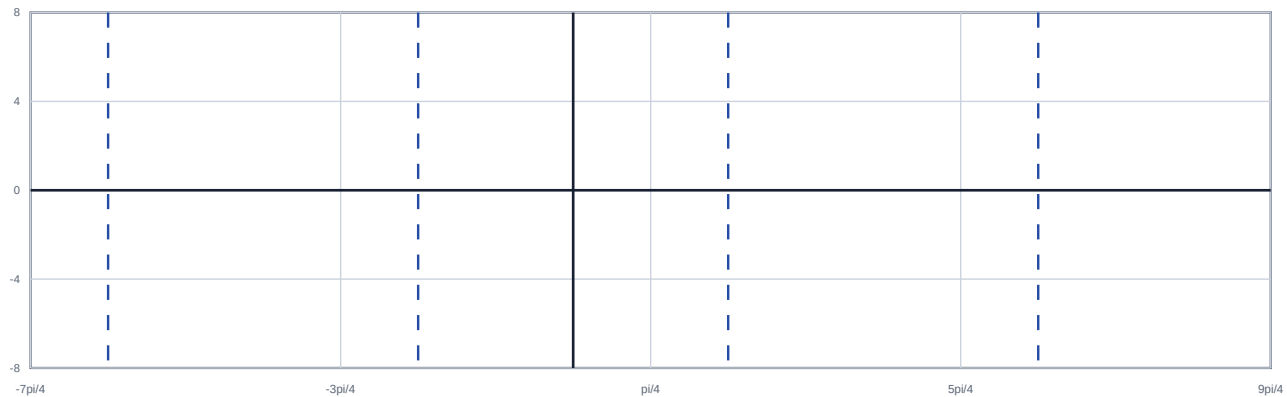
1. Graph $y = \csc(x)$ over the displayed two-period window.

Assumptions: Angles use the selected unit. The graph window spans two complete periods, and disconnected branches stop at vertical asymptotes.



2. Graph $y = \sec(x)$ over the displayed two-period window.

Assumptions: Angles use the selected unit. The graph window spans two complete periods, and disconnected branches stop at vertical asymptotes.

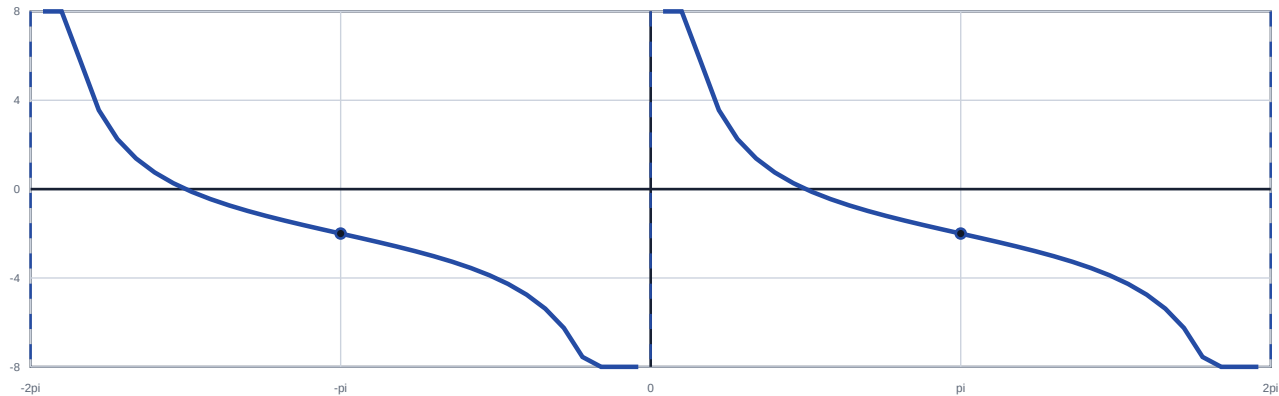


Graphs of Tangent, Cotangent, Secant, and Cosecant

Mark every vertical asymptote, zero or vertex, and draw each branch without crossing an asymptote. State the period and domain exclusions.

3. Write one valid equation for the displayed graph.

Assumptions: Angles use the selected unit. The graph window spans two complete periods, and disconnected branches stop at vertical asymptotes.



4. Graph $y = 3\tan(2(x - \pi/4)) - 2$ over the displayed two-period window.

Assumptions: Angles use the selected unit. The graph window spans two complete periods, and disconnected branches stop at vertical asymptotes.

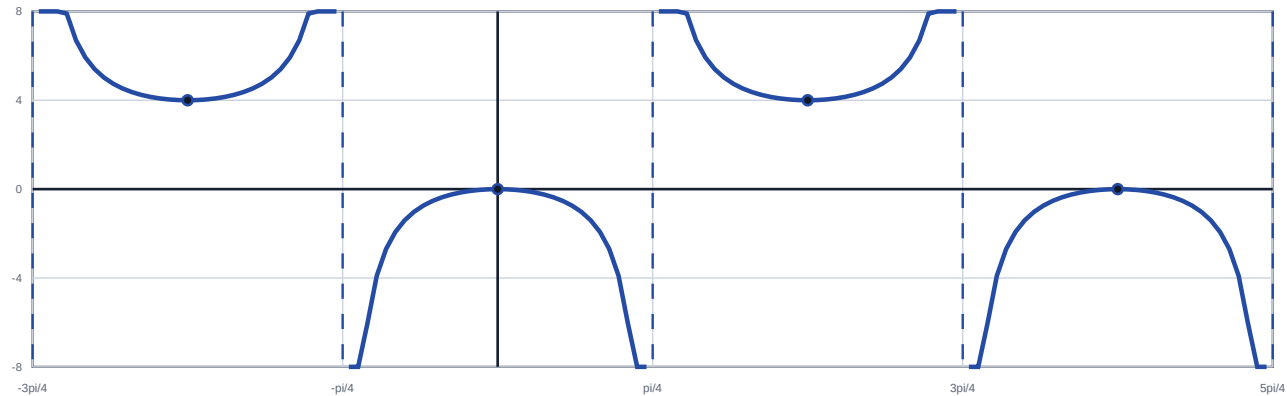


Graphs of Tangent, Cotangent, Secant, and Cosecant

Mark every vertical asymptote, zero or vertex, and draw each branch without crossing an asymptote. State the period and domain exclusions.

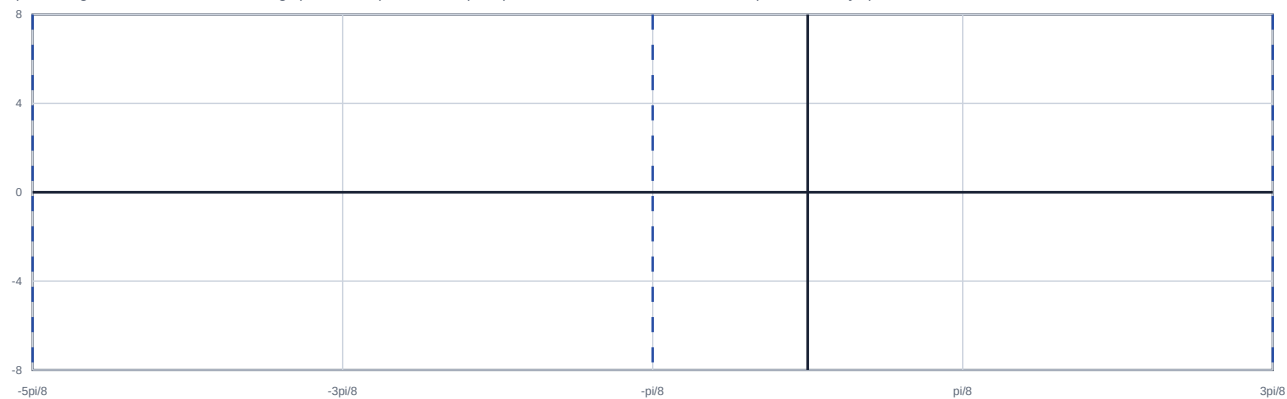
5. Write one valid equation for the displayed graph.

Assumptions: Angles use the selected unit. The graph window spans two complete periods, and disconnected branches stop at vertical asymptotes.



6. Graph $y = 2\cot(2(x - \pi/8)) - 2$ over the displayed two-period window.

Assumptions: Angles use the selected unit. The graph window spans two complete periods, and disconnected branches stop at vertical asymptotes.

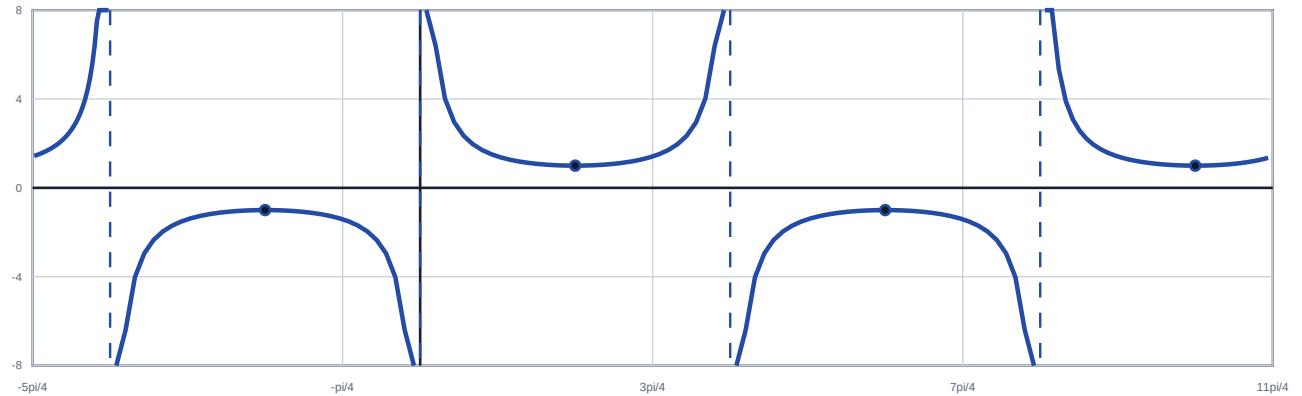


Graphs of Tangent, Cotangent, Secant, and Cosecant

Worked Answer Key

Mark every vertical asymptote, zero or vertex, and draw each branch without crossing an asymptote. State the period and domain exclusions.

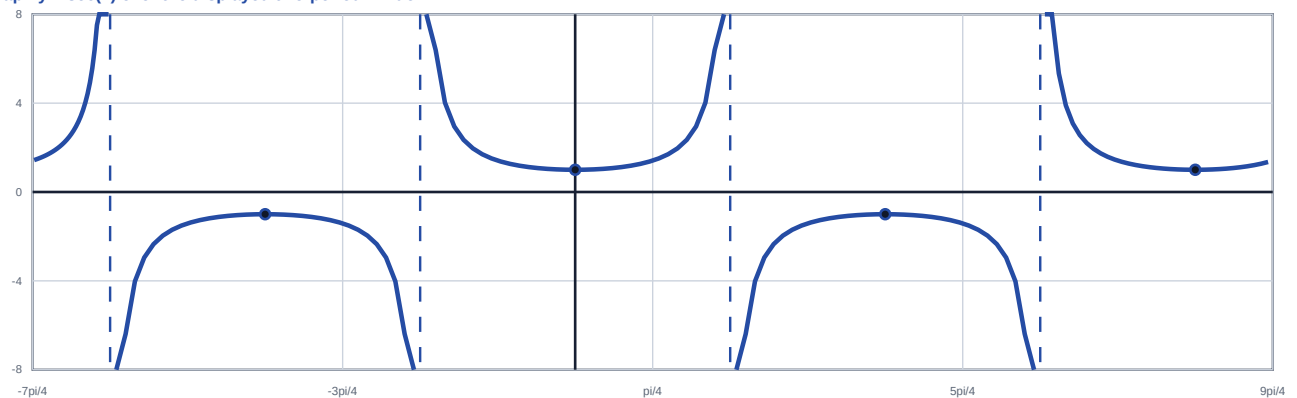
1. Graph $y = \csc(x)$ over the displayed two-period window.



Answer: $y = \csc(x)$

1. Period: 2π .
2. Vertical asymptotes in this window: $-\pi$, 0 , π , 2π .
3. Plot alternating reciprocal vertices and draw each U-shaped branch without crossing an asymptote.

2. Graph $y = \sec(x)$ over the displayed two-period window.



Answer: $y = \sec(x)$

1. Period: 2π .
2. Vertical asymptotes in this window: $-3\pi/2$, $-\pi/2$, $\pi/2$, $3\pi/2$.
3. Plot alternating reciprocal vertices and draw each U-shaped branch without crossing an asymptote.

Math Sheet

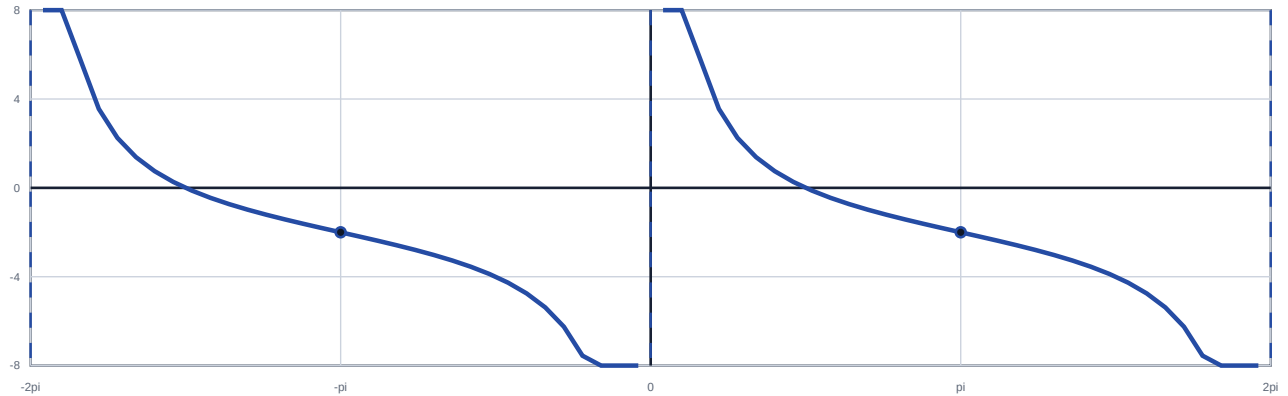
Name _____ Score _____ Teacher _____ Date _____

Graphs of Tangent, Cotangent, Secant, and Cosecant

Worked Answer Key

Mark every vertical asymptote, zero or vertex, and draw each branch without crossing an asymptote. State the period and domain exclusions.

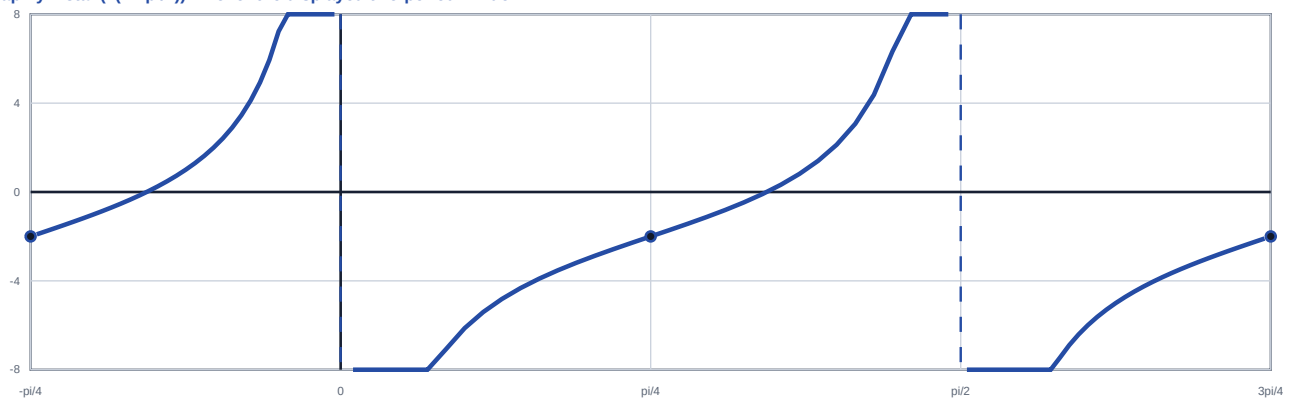
3. Write one valid equation for the displayed graph.



Answer: $y = 2\cot((1/2)x) - 2$

1. Period: 2π .
2. Vertical asymptotes in this window: -2π , 0 , 2π .
3. Plot one zero between consecutive asymptotes and draw each increasing or decreasing branch separately.

4. Graph $y = 3\tan(2(x - \pi/4)) - 2$ over the displayed two-period window.



Answer: $y = 3\tan(2(x - \pi/4)) - 2$

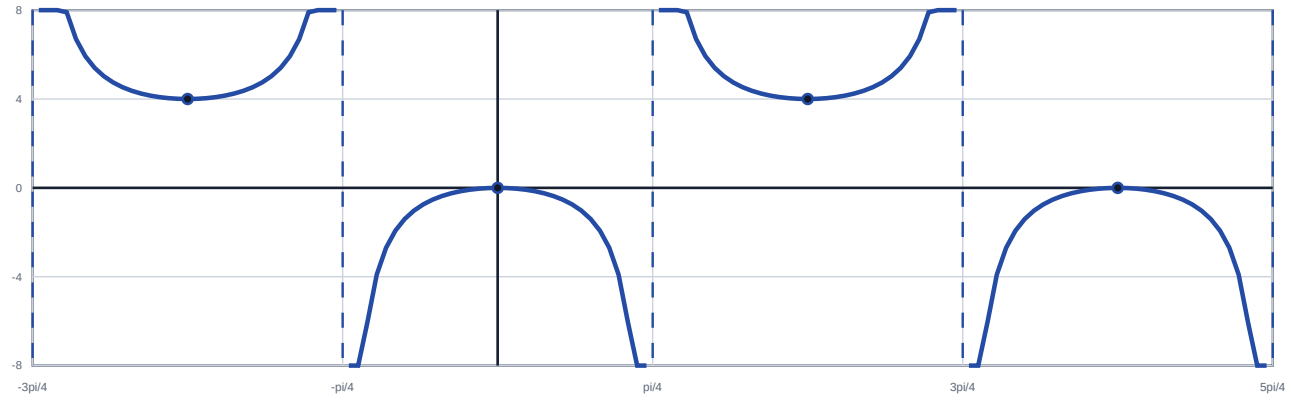
1. Period: $\pi/2$.
2. Vertical asymptotes in this window: 0 , $\pi/2$.
3. Plot one zero between consecutive asymptotes and draw each increasing or decreasing branch separately.

Graphs of Tangent, Cotangent, Secant, and Cosecant

Worked Answer Key

Mark every vertical asymptote, zero or vertex, and draw each branch without crossing an asymptote. State the period and domain exclusions.

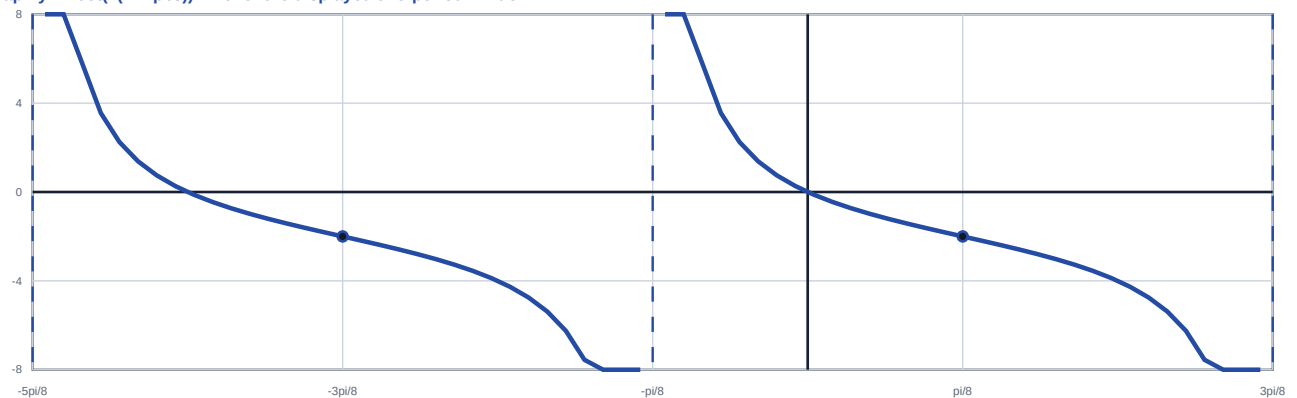
5. Write one valid equation for the displayed graph.



Answer: $y = 2\csc(2(x - \pi/4)) + 2$

1. Period: π .
2. Vertical asymptotes in this window: $-3\pi/4$, $-\pi/4$, $\pi/4$, $3\pi/4$, $5\pi/4$.
3. Plot alternating reciprocal vertices and draw each U-shaped branch without crossing an asymptote.

6. Graph $y = 2\cot(2(x - \pi/8)) - 2$ over the displayed two-period window.



Answer: $y = 2\cot(2(x - \pi/8)) - 2$

1. Period: $\pi/2$.
2. Vertical asymptotes in this window: $-5\pi/8$, $-\pi/8$, $\pi/8$, $3\pi/8$.
3. Plot one zero between consecutive asymptotes and draw each increasing or decreasing branch separately.