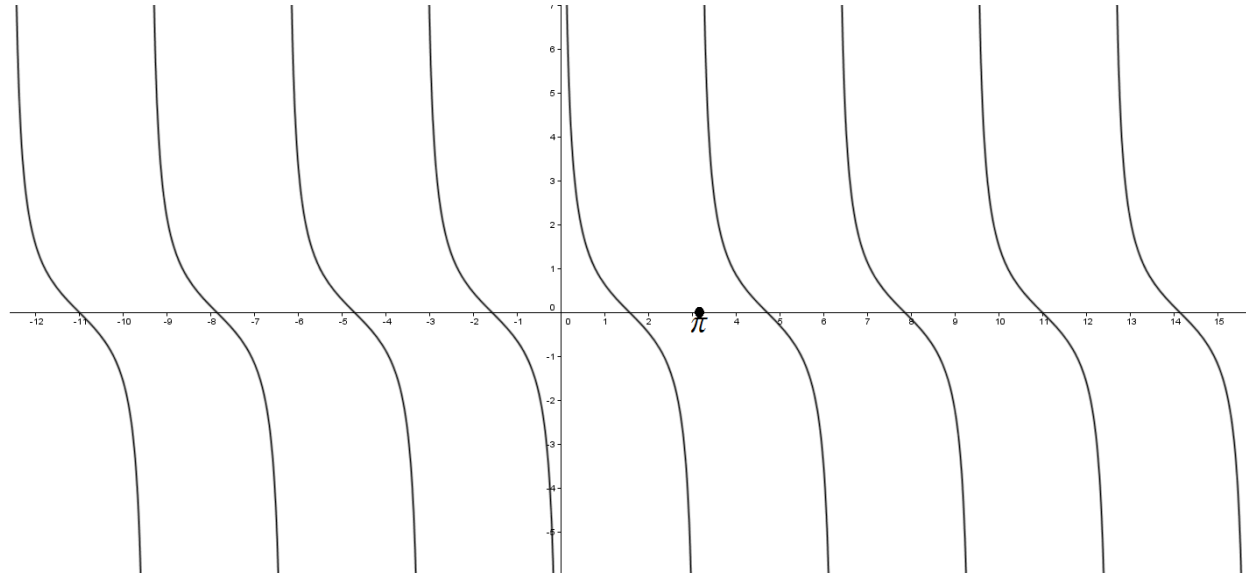


Sample Questions

1. Following is a graph of $f(x) = \cot x$



Write the equations of the vertical asymptotes of $f(x) = \cot x$

2. Write the equations of the horizontal asymptotes to the graph of $y = 2 \tan^{-1} x$

3: Find the asymptotes of $f(x) = \frac{9x^2 + 5}{\sqrt{9x^4 + 1}}$

4-6: Consider $f(x) = \frac{x^2 - 2x + 4}{x - 2}$

For the graph of this function, let us find (if possible)

- a) the domain
- b) the coordinates of the x-intercepts
- c) the coordinate of the y-intercept
- d) the coordinates of the critical points
- e) the intervals on which the function increases or decreases
- f) the local maxima and the local minima
- g) the intervals on which the function is concave up or concave down
- h) the asymptotes

7. Find $\lim_{x \rightarrow 0} \frac{2x - \sin x}{\sin x}$

8. $\lim_{x \rightarrow \infty} \left(1 - \frac{1}{x}\right)^x$ **(exact value)**

17.

17. Find a value for p so $\lim_{x \rightarrow 0} \frac{e^{px} - 1}{3x} = 5$.