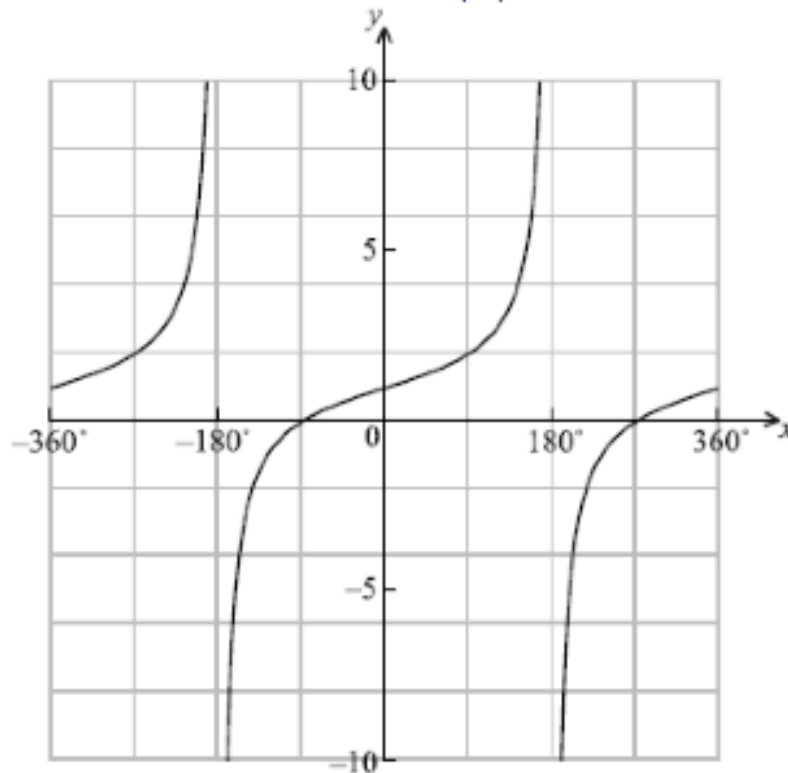


2.)

The diagram below shows the graph of $f(x) = 1 + \tan\left(\frac{x}{2}\right)$ for $-360^\circ \leq x \leq 360^\circ$.



- (a) On the same diagram, draw the asymptotes. [2 marks]
- (b) Write down
- (i) the period of the function;
 - (ii) the value of $f(90^\circ)$. [2 marks]
- (c) Solve $f(x) = 0$ for $-360^\circ \leq x \leq 360^\circ$. [2 marks]

3.)

Consider the function $f(x) = \cos x + \sin x$.

- (a) (i) Show that $f\left(-\frac{\pi}{4}\right) = 0$.
- (ii) Find in terms of π , the smallest **positive** value of x which satisfies $f(x) = 0$. [3 marks]

NAME: _____

DATE: 11/09/2017

Answer key (ensure you show all calculations. I need to see steps in order to provide the grade you seek.)

1.) At 0 radians, the cosine coordinate on the Unit Circle would be 1. However, we are multiplying the cosine value by 2 in this particular problem.

2.) a) asymptotes are dashed horizontal or vertical lines where a function trends toward infinity

bi) period: ending – beginning x-values that are not repetitious

bii) the question is asking, “what is the output value when you input 90° as your x-value?”

c) $f(x)$ stands for “y,” so this question is asking, “what x-values make the output value 0?”

3.) ai) input $-\pi/4$ into for both cosine and sine, then add those values. You’ll see the answer is 0.

aii) which positive, x-value for radians will make cosine and sine be exact opposites and cancel out to make the output value 0?

a.) What is the amplitude? _____

b.) What is the period? _____