

Week 6 Homework.

Question 1

Phase shift.

Question 2.

period: $\frac{1}{3}$

Amplitude. = $\frac{1}{3} \times 4$

Question 3:

period: $\frac{1}{7}$

Amplitude: $\frac{2}{5}$ or 0.4

Question 4.

~~The graph of g is identical to the graph of f.~~

The graph of g is a horizontal shift of the graph of f 3π units to the right.

Question 5.

The graph of g is a vertical shift on the graph of f upwards by 5 units.

Question 6

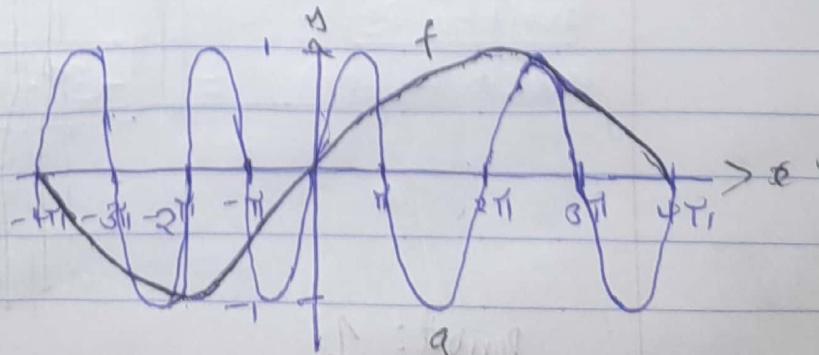
The graphs of f and g differ only in their phase shift.

Question 7

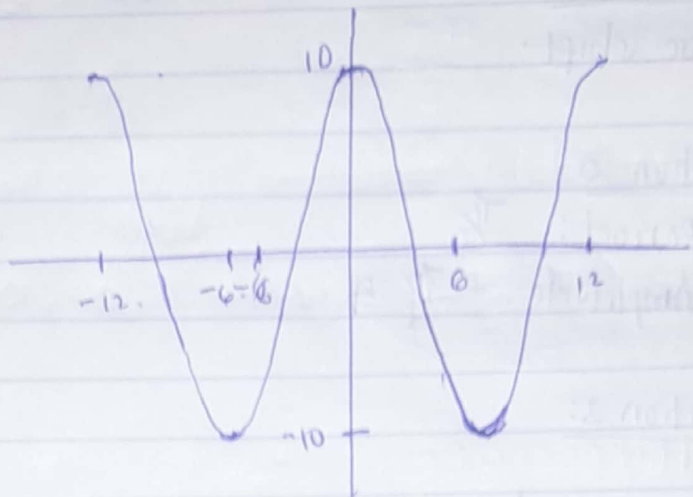
The period of g is one-half the period of f.

Question 8.

Ans: Graph 2 2nd graph.



Question 9.
Ans: 3rd Graph.



Question 10.

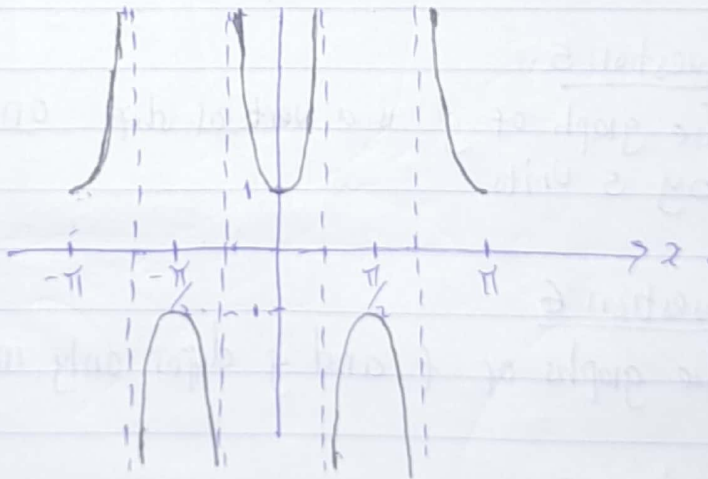
$x \neq n\pi$, where n is an integer.

Question 11.

The period of $y = \csc x$ is 2π .

Question 12.

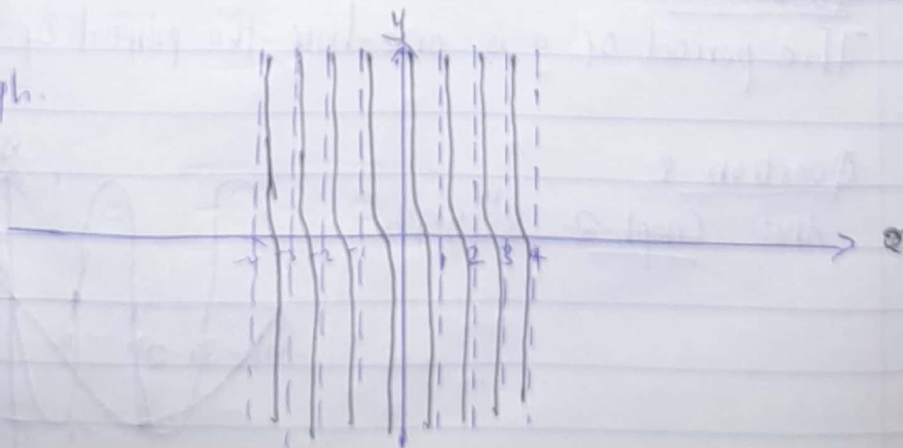
Ans: 3rd Graph.



Period: 2π

Question 13.

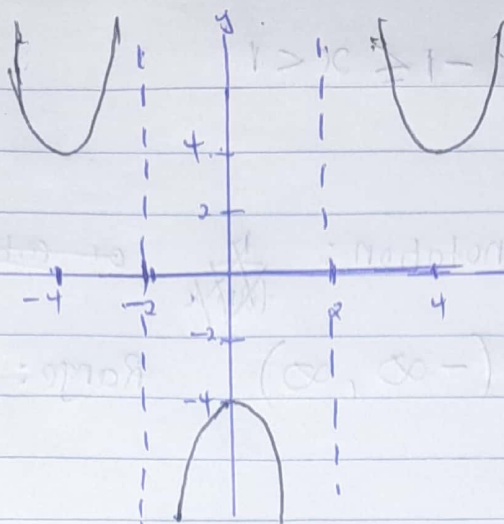
Ans: 4th Graph.



Period: 1

Question 14

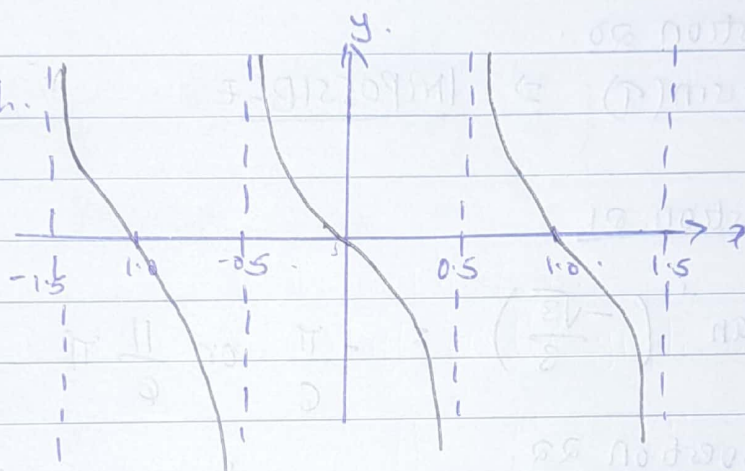
Ans: 1st graph.



period: 8

Question 15.

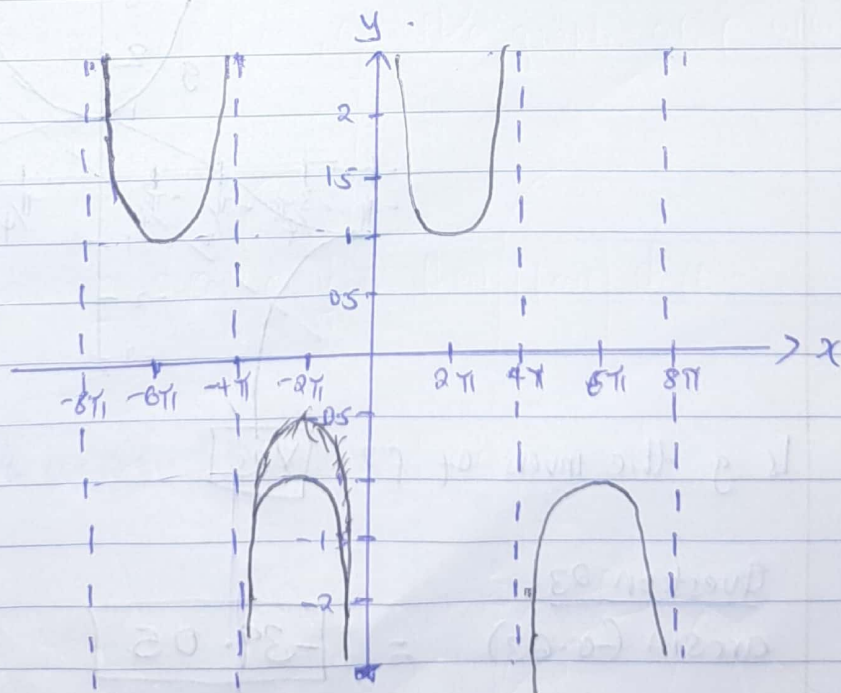
Ans: 3rd Graph.



Period

Question 16.

Ans: 2nd Graph.



Question 17.

Alternative notation: $y = \frac{1}{\sin x}$ or $y = \csc x$. $\sin^{-1}(x)$

Domain: $-1 \leq x < 1$

Question 18

Alternative notation: ~~$\tan^{-1} x$~~ or ~~$\cot x$~~ $\cdot \tan^{-1}(x)$

Domain: $(-\infty, \infty)$ Range: $(-\frac{\pi}{2}, \frac{\pi}{2})$ or $-\frac{\pi}{2} \leq y \leq \frac{\pi}{2}$

Question 19.

$$\arccos\left(\frac{1}{2}\right) = \frac{\pi}{3} \text{ or } 60^\circ$$

Question 20.

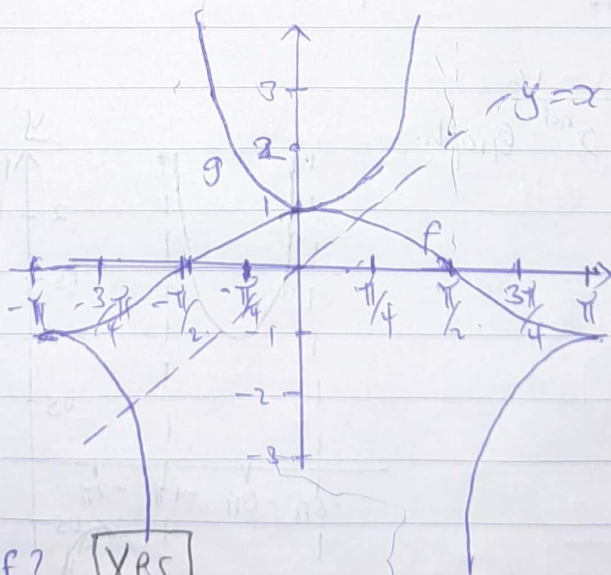
$\arcsin(1) \Rightarrow$ IMPOSSIBLE

Question 21

$$\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right) = -\frac{\pi}{6} \text{ or } \frac{11}{6}\pi$$

Question 22.

Ans: 3rd Graph.



Is g the inverse of f? Yes

Question 23.

$$\arcsin(-0.63) \approx -39.05$$

Question 24

$$(x_1, y_1) = \left(-\sqrt{3}, -\frac{\pi}{3} \right)$$

$$\text{Required: } -\frac{\pi}{3}$$

$$(x_2, y_2) = \left(-\frac{\sqrt{3}}{3}, -\frac{\pi}{6} \right)$$

$$\text{Required: } -\frac{\sqrt{3}}{3}$$

$$(x_3, y_3) = \frac{\pi}{4}, \frac{\pi}{4} \left(1.05, \frac{\pi}{4} \right)$$

$$\text{Required: } 1.05$$

Question 25.

$$\theta = \arccos \frac{5}{x}$$

Question 26.

$$\theta = \arctan \left(\frac{x+1}{14} \right)$$

Question 27.

$$\cos [\arccos (-\sqrt{3})] = \underline{\underline{-\sqrt{3}}}$$

Question 28.

$$\sin (\arcsin (-0.1)) = -0.1$$