

System of Trigonometric Equations

Name _____

Class _____

Date _____

A N S W E R S

1a

1b

2a

2b

Solve the system of equations:

$$1. \quad \mathbf{a.} \quad \begin{cases} \cos x + \cos y = \frac{3}{2} \\ x - y = \frac{\pi}{3} \end{cases}$$

$$\mathbf{b.} \quad \begin{cases} x + y = \frac{\pi}{3} \\ \sin x + \sin y = 1 \end{cases}$$

$$2. \quad \mathbf{a.} \quad \begin{cases} \sin x - \sin y = \sqrt{2} \\ x + y = \frac{\pi}{2} \end{cases}$$

$$\mathbf{b.} \quad \begin{cases} \sin x + \sin y = \sqrt{2} \\ x - y = \frac{\pi}{2} \end{cases}$$

A

A N S W E R S

1a

1b

2a

2b

3a

3b

4a

4b

1. Solve the following systems of trigonometric equations:

$$\text{a. } \begin{cases} \frac{\sin x}{\cos y} = 2 \\ x - y = \frac{\pi}{6} \end{cases} \qquad \text{b. } \begin{cases} \frac{\sin x}{\sin y} = 2 \\ x + y = \frac{2\pi}{3} \end{cases}$$

Find the domain of the following functions:

2. a. $y = \sqrt{(1 + \tan^2 x) \sin^2 x}$

b. $y = \sqrt{(\sin x + \cos x)^2 - 1}$

3. a. $f(x) = \frac{\sin x}{\cos^2 x - \sin^2 x - 1}$

b. $f(x) = \frac{\cos^2 x + 1}{\sin x + \cos x}$

4. a. $y = \frac{1}{2 \cos^2 x - \cos x - 1}$

b. $y = \frac{1}{2 \sin^2 x - \sin x - 1}$

B