

Trigonometric Equations and Inequalities

Name _____

Class _____

Date _____

ANSWERS

1a

1b

2a

2b

3a

3b

4a

4b

5a

5b

6a

6b

7a

7b

Find the positive roots of following equations:

1. a. $\sqrt{2} \sin 2x + 3(\sin x + \cos x) = 4\sqrt{2}$

b. $\sin^3 x + \cos^3 x = 1$

2. a. $\sin x \sin 7x = \sin 3x \sin 5x$

b. $\cos x \sin 7x = \cos 3x \sin 5x$

Solve the following inequalities

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

b. $3\cos^2 x - \sin^2 x > \sin 2x$

4. a. $\cos 2x - \sin x \geq 1$

b. $\cos 2x + \cos x \geq -1$

5. a. $\cos 2x + 5\cos x + 3 \geq 0$

b. $\sin^2 x + \sqrt{3} \sin x - 3 > 0$

6. a. $2\cos^2 x + 5\cos x + 2 \geq 0$

b. $tg^2 x - (1 + \sqrt{3})tgx + \sqrt{3} < 0$

7. a. $\sin 3x < \sin x$

b. $\sin x + \sqrt{3} \cos x > 0$

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