10 – 4 Worksheet Name _____ Assignment # ___

You must do your work on a separate piece of paper.

Solve # 1 – 6 .

1. $\sin 2x = \sin x; 0 \le x < 2\pi$

2. $\tan 2x + \tan x = 0; 0 \le x < 2\pi$

3. $3\sin x = 1 + \cos 2x; 0 \le x < 2\pi$

4. $4\sin x \cos x = \sqrt{3}; 0 \le x < 360^\circ$

5. $\cos 8x \cos 5x + \sin 8x \sin 5x = -1; 0 \le x < 360°$

6. $\sin 2x \tan x = 1; 0 \le x < 360^\circ$

7. $\sin x \cos x = \frac{1}{2}; 0 \le x < 2\pi$

8. $2\cos(x + 45°) = 1; 0° \le x < 360°$

9. Given: $\tan\theta = \frac{5}{12}, \theta$ in Q III.

Find: a) $\tan 2\theta$ b) $\sin 2\theta$ c) cos ½ θ

10. Expand and simplify: csc (180° - θ)

11. Find $\tan(\alpha + \beta)$ given $\sin\alpha = \frac{3}{5}, \alpha$ in Q I and $\cos\beta = \frac{5}{13}, \beta$ in Q IV

12. Show: $\cos(\alpha - \beta) - \cos(\alpha + \beta) = 2\sin\alpha\sin\beta$

13. Show: $\sin(\alpha + \beta) - \sin(\alpha - \beta) = 2\sin\beta\cos\alpha$

Find the EXACT VALUE of each of the following.

14. sin 15°cos 15°

15. sin 112.5°

$\cos\theta = \frac{-4}{5}; 90° < \theta < 180°$. Find the following:

16. $\sin 2\theta$

17. $\cos 2\theta$

18. $\cos\left(\frac{\theta}{2}\right)$

19. $\sin\left(\frac{\theta}{2}\right)$

20. $\tan\left(\frac{\theta}{2}\right)$

Answers:

1) $0, \frac{\pi}{3}, \frac{5\pi}{3}, \pi$

2) $0, \frac{\pi}{3}, \frac{2\pi}{3}, \pi, \frac{4\pi}{3}, \frac{5\pi}{3}$

3) $\frac{\pi}{6}, \frac{5\pi}{6}$

4) 30°, 60°, 210°, 240°

5) 60°, 180°, 300°

6) 45°, 135°, 225°, 315°

7) $\frac{\pi}{4}; \frac{5\pi}{4}$

8) $15°; 255°$

9) $\frac{120}{119}; \frac{120}{169}; \frac{-\sqrt{26}}{26}$

10) $\csc\theta$

11) $\frac{-33}{56}$

14. ¼

15. $\frac{\sqrt{2+\sqrt{2}}}{2}$

16. -24/25

17. 7/25

18. $\frac{\sqrt{10}}{10}$

19. $\frac{3\sqrt{10}}{10}$

20. 3