GSE Pre-Calculus Name_____

Evaluating Double Angles and Sum/Difference

Date_____ Block____

Use a double-angle identity to find the exact value of each expression.

All 10

1) $\cos\theta = -\frac{4}{5}$ and $\pi < \theta < \frac{3\pi}{2}$
Find $\cos 2\theta$

2) $\cos\theta = \frac{15}{17}$ and $0° < \theta < 90°$
Find $\sin 2\theta$

3) $\cos\theta = \frac{24}{25}$ and $\frac{3\pi}{2} < \theta < 2\pi$
Find $\cos 2\theta$

4) $\cos\theta = \frac{1}{2}$ and $270° < \theta < 360°$
Find $\cos 2\theta$

5) $\cos\theta = -\frac{4}{5}$ and $180° < \theta < 270°$
Find $\sin 2\theta$

6) $\cos\theta = \frac{4\sqrt{19}}{19}$ and $\frac{3\pi}{2} < \theta < 2\pi$
Find $\sin 2\theta$

OR

7) $\cos\theta = -\frac{4}{5}$ and $90° < \theta < 180°$
Find $\sin 2\theta$

8) $\cos\theta = -\frac{4}{5}$ and $180° < \theta < 270°$
Find $\cos 2\theta$

9) $\cos\theta = \frac{15}{17}$ and $270° < \theta < 360°$
Find $\cos 2\theta$

10) $\cos\theta = -\frac{24}{25}$ and $\pi < \theta < \frac{3\pi}{2}$
Find $\sin 2\theta$

Challenge!

11) $\tan\theta = -\frac{8}{15}$ and $90° < \theta < 180°$
Find $\cos 2\theta$

12) $\tan\theta = \frac{4}{3}$ and $0° < \theta < 90°$
Find $\cos 2\theta$

PICK 5

13) $\csc\theta = \frac{17}{8}$ and $0° < \theta < 90°$
Find $\sin 2\theta$

14) $\cot\theta = -\frac{\sqrt{2}}{4}$ and $90° < \theta < 180°$
Find $\sin 2\theta$

15) $\sec\theta = -\frac{17}{15}$ and $180° < \theta < 270°$
Find $\sin 2\theta$

16) $\sec\theta = \frac{5}{4}$ and $\frac{3\pi}{2} < \theta < 2\pi$
Find $\sin 2\theta$

17) $\csc\theta = -\frac{5}{3}$ and $180° < \theta < 270°$
Find $\cos 2\theta$

18) $\cos\theta = \frac{3\sqrt{13}}{13}$ and $0 < \theta < \frac{\pi}{2}$
Find $\cos 2\theta$

19) $\tan\theta = -\frac{2\sqrt{6}}{3}$ and $\frac{3\pi}{2} < \theta < 2\pi$

Find $\sin 2\theta$

20) $\cos\theta = \frac{\sqrt{33}}{11}$ and $0° < \theta < 90°$

Find $\tan 2\theta$

Use the angle sum or difference identity to find the exact value of each.

21) $\cos 75°$

22) $\cos 105°$

23) $\cos 15°$

24) $\cos\frac{5\pi}{12}$

25) $\sin\frac{7\pi}{12}$

26) $\sin\frac{19\pi}{12}$

27) $\cos\frac{5\pi}{12}$

28) $\sin 165°$

29) $\sin\frac{5\pi}{12}$

30) $\sin 195°$

PICK 5

Solving Trig Equations - Review Homework

Solve each of the following equations

PICK 8

1. $\tan 2x - 1 = 0$
2. $\sin^2 x - 2\sin x - 3 = 0$
3. $\sin x = \cos x$
4. $\cos x = 3\cos x + 1$
5. $4\tan x + \sin 2x = 0$
6. $4\cos^2 x - 4\cos x + 1 = 0$
7. $3\cos x - 2\cos x \sin x = 0$
8. $10\sin^2 x - 7\sin x = 6$
9. $2\sin 2x = 1$
10. $3\sin^2 x - \cos^2 x = 0$
11. $4\sin^2 x - 1 = 0$
12. $\sqrt{3}\cot x \sin x + 2\cos^2 x = 0$
13. $\sin^2 x - 3\sin x + 2 = 0$
14. $3\tan^2 x + 4\sec x = -4$
15. $\sin 2x \sin x + \cos 2x \cos x = 1$
16. $2\sin x \cos x + 4\sin x = \cos x + 2$

ALL 8

Simplify the following expressio

1) $\sin x \cot x$

2) $\frac{\sec x}{\csc x}$

3) $\frac{1-\sin^2 x}{\cos x}$

4) $\sin t - \sin t \cos^2 t$

5) $\cos x + \tan x \sin x$

6) $\sin^3 x + \sin x \cos^2 x$

7) $\frac{\csc x - \sin x}{\csc x}$

8) $\frac{\sin x}{\cos x} + \frac{\cos x}{1+\sin x}$