Kuta Software - Infinite Algebra 2 Name_____

Double- and Half-Angle Identities

Date_____ Period____

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

1) $\sin 120°$

2) $\tan 60°$

3) $\cos \frac{4\pi}{3}$

4) $\sin \frac{5\pi}{3}$

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

5) $\tan 45°$

6) $\sin 165°$

7) $\sin \frac{5\pi}{6}$

8) $\cos 30°$

9) Find the exact value of each of the following under the given conditions: $\sin u = \frac{3}{5}, \ \frac{\pi}{2} < u < \pi$

$\tan v = \frac{5}{12}, \ \pi < v < \frac{3\pi}{2}$

A. $\sin(u+v)$

B. $\cos(u+v)$

$\sin u = -\frac{4}{7}, \ \pi < u < \frac{3\pi}{2}$ and $\cos V = \frac{3}{8}, \ 0 < v < \frac{\pi}{2}$

C. $\cos(u+v)$

D. $\sin(u-v)$

15) $\sin\theta = -\frac{7}{25}$ and $270° < \theta < 360°$

Find $\cos\frac{\theta}{2}$

16) $\sin\theta = \frac{1}{3}$ and $0° < \theta < 90°$

Find $\cos 2\theta$

17) $\cos\theta = \frac{4}{5}$ and $270° < \theta < 360°$

Find $\sin 2\theta$

18) $\cos\theta = \frac{2\sqrt{5}}{5}$ and $0° < \theta < 90°$

Find $\sin\frac{\theta}{2}$

19) $\cos\theta = -\frac{4}{5}$ and $90° < \theta < 180°$

Find $\sin\frac{\theta}{2}$

20) $\cos\theta = -\frac{15}{17}$ and $180° < \theta < 270°$

Find $\tan\frac{\theta}{2}$

21) $\tan\theta = -\frac{7}{24}$ and $\frac{3\pi}{2} < \theta < 2\pi$

Find $\cos\frac{\theta}{2}$

22) $\cot\theta = \frac{4}{3}$ and $\pi < \theta < \frac{3\pi}{2}$

Find $\sin 2\theta$

23) $\cot\theta = \frac{4}{3}$ and $\pi < \theta < \frac{3\pi}{2}$

Find $\cos 2\theta$

24) $\tan\theta = 2$ and $0 < \theta < \frac{\pi}{2}$

Find $\sin\frac{\theta}{2}$

25) $\sin\theta = -\frac{3}{5}$ and $\frac{3\pi}{2} < \theta < 2\pi$

Find $\tan\frac{\theta}{2}$

26) $\cot\theta = -\frac{3\sqrt{91}}{91}$ and $\frac{3\pi}{2} < \theta < 2\pi$

Find $\sin\frac{\theta}{2}$