6.3 Trigonometry short version
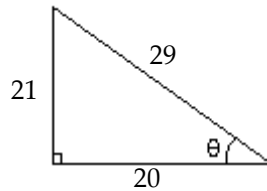
Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

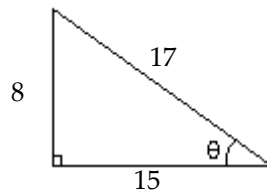**Use the figure to find the exact value of the trigonometric function.**

1) Find $\cos 2\theta$.
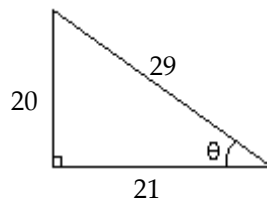
1) _____

2) Find $\sin 2\theta$.

2) _____

3) Find $\tan 2\theta$.

3) _____

Use the given information to find the exact value of the expression.

4) $\sin \theta = \dfrac{3}{5}$, θ lies in quadrant I   Find $\cos 2\theta$.

4) _____

5) $\cos \theta = \dfrac{8}{17}$, θ lies in quadrant IV   Find $\sin 2\theta$.

5) _____

6) $\tan \theta = \dfrac{21}{20}$, θ lies in quadrant III   Find $\sin 2\theta$.

6) _____

Write the expression as the sine, cosine, or tangent of a double angle. Then find the exact value of the expression.

7) $2 \sin 120° \cos 120°$

7) _____

8) $\cos^2 60° - \sin^2 60°$

8) _____

9) $\dfrac{2 \tan \dfrac{2\pi}{3}}{1 - \tan^2 \dfrac{2\pi}{3}}$

9) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Complete the identity.

10) $(\sin x - \cos x)^2 = ?$

10) _____

    A) $1 + \cos 2x$ B) $1 - \cos 2x$ C) $\sin 2x$ D) $1 - \sin 2x$

11) $\sin 2x - \tan x = ?$

11) _____

    A) $\cot x \cos 2x$ B) $-\tan x \cos 2x$ C) $-\tan x \cos x$ D) $\tan x \cos 2x$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Verify the identity.

12) $\sin 4t = 2 \sin 2t \cos 2t$

12) _____

Rewrite the expression as an equivalent expression that does not contain powers of trigonometric functions greater than 1.

13) $8 \cos^2 x$

13) _____

14) $\sin^4 x$

14) _____

15) $\sin^3 x$

15) _____

16) $6 \sin^2 x \cos^2 x$

16) _____

Use a half–angle formula to find the exact value of the expression.

17) $\cos 112.5°$

17) _____

18) $\tan 105°$

18) _____

19) $\cos \dfrac{3\pi}{8}$

19) _____

20) $\sin \dfrac{5\pi}{12}$

20) _____

Use the given information to find the exact value of the trigonometric function.

21) $\sin \theta = \dfrac{1}{4}$, θ lies in quadrant I   Find $\sin \dfrac{\theta}{2}$.

21) _____

2

22) $\sin \theta = \dfrac{1}{4}$, $\tan \theta > 0$ Find $\cos \dfrac{\theta}{2}$.   22) _____

23) $\cos \theta = \dfrac{1}{4}$, $\csc \theta > 0$ Find $\sin \dfrac{\theta}{2}$.   23) _____

24) $\sec \theta = 4$, θ lies in quadrant I   Find $\cos \dfrac{\theta}{2}$.   24) _____

25) $\cos \theta = -\dfrac{3}{5}$, θ lies in quadrant III   Find $\cos \dfrac{\theta}{2}$.   25) _____

26) $\cos \theta = -\dfrac{3}{5}$, $\sin \theta > 0$ Find $\cos \dfrac{\theta}{2}$.   26) _____

1) $-\dfrac{41}{841}$

2) $\dfrac{240}{289}$

3) $\dfrac{840}{41}$

4) $\dfrac{7}{25}$

5) $-\dfrac{240}{289}$

6) $\dfrac{840}{841}$

7) $-\dfrac{\sqrt{3}}{2}$

8) $-\dfrac{1}{2}$

9) $\sqrt{3}$

10) D

11) D

12) $\sin 4t = \sin [2(2t)] = 2 \sin 2t \cos 2t.$

13) $4 + 4 \cos 2x$

14) $\dfrac{3}{8} - \dfrac{1}{2} \cos 2x + \dfrac{1}{8} \cos 4x$

15) $\dfrac{3}{4} \sin x - \dfrac{1}{4} \sin 3x$

16) $\dfrac{3}{4} - \dfrac{3}{4} \cos 4x$

17) $-\dfrac{1}{2} \sqrt{2 - \sqrt{2}}$

18) $-\sqrt{3} - 2$

19) $\dfrac{1}{2} \sqrt{2 - \sqrt{2}}$

20) $\dfrac{1}{2} \sqrt{2 + \sqrt{3}}$

21) $\dfrac{\sqrt{8 - 2\sqrt{15}}}{4}$

22) $\dfrac{\sqrt{8 + 2\sqrt{15}}}{4}$

23) $\dfrac{\sqrt{6}}{4}$

24) $\dfrac{\sqrt{10}}{4}$

25) $-\dfrac{\sqrt{5}}{5}$

26) $\dfrac{\sqrt{5}}{5}$