The University of Toledo

TRIGONOMETRY PRACTICE TEST

This test consists of 20 questions. While you may take as much as you wish, it is
expected that you are able to complete it in about 45 minutes.
For proper course placement, please:
- Take the test seriously and honestly
- Do your own work without any assistance. Do not use any reference materials,
calculator, or any other computing aid
- Do not guess. If you don't know how to work a problem, leave the answer blank.

1. The exact value of $\sin 60^\circ$ is

A) $\dfrac{\sqrt{3}}{3}$ B) $\dfrac{\sqrt{3}}{2}$ C) $\dfrac{\sqrt{2}}{2}$ D) $\dfrac{1}{2}$ E) none of the above

2. What is the radian measure of the angle whose degree measure are 300°?

A) $\dfrac{4}{3}\pi$ B) $\dfrac{11}{6}\pi$ C) $\dfrac{11}{12}\pi$ D) $\dfrac{\pi}{6}$ E) $\dfrac{5}{3}\pi$

3. If $\sin\theta = -\dfrac{3}{5}$ and $\cos\theta = -\dfrac{4}{5}$, then θ lies in
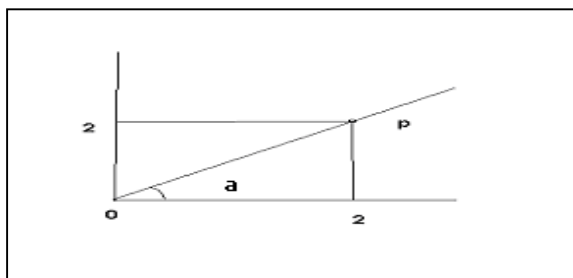
A) quadrant I   B) quadrant II
C) quadrant III   D) quadrant IV   E) none of the above

4. Of the following, which is the smallest?

A) $\sin 0$ B) $\sin\dfrac{\pi}{6}$ C) $\sin\dfrac{\pi}{4}$ D) $\sin(-\dfrac{\pi}{3})$ E) $\sin\dfrac{\pi}{2}$

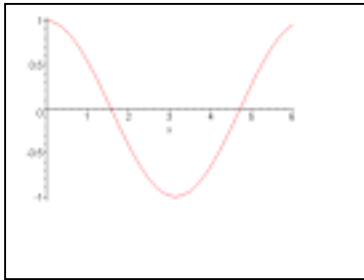5. If the coordinates (x, y) of the point p in the figure are (2,2), then than $\sin(a)=$
A) 1/3

B) $\dfrac{\sqrt{2}}{3}$

C) $\dfrac{\sqrt{5}}{2}$

D) $\dfrac{\sqrt{2}}{2}$

E) 1
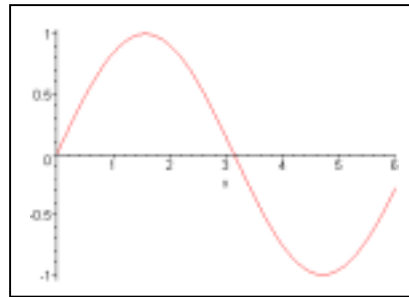

6. The graph of the function $y=-\tan(x+\pi/2)$ has asymptotes at

A) x=0 and x=$\frac{\pi}{2}$ B) x=$\frac{\pi}{2}$ and x=2π

C) x=$\frac{\pi}{2}$ and x=$\frac{3\pi}{2}$ D) x= -$\frac{\pi}{2}$ and x= π E) answer not given
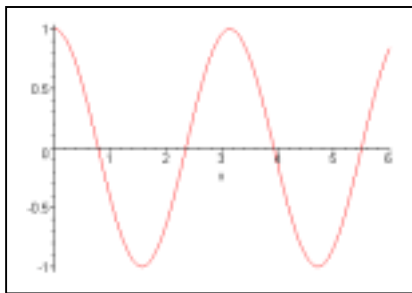
7. Which of the following is the graph of y=sinx+4?
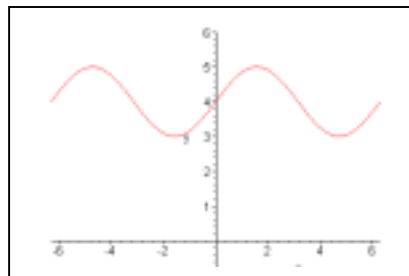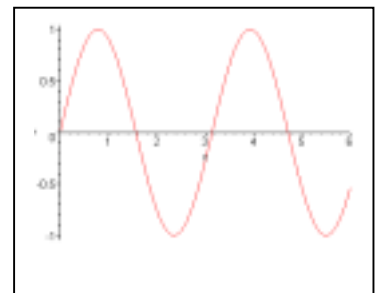
(A)

(B)

(C)

(D)

(E)

8. The exact value of tan 60° is

A) $\sqrt{3}$ B) 1   C) $\frac{1}{2}\sqrt{3}$ D) $\frac{1}{3}\sqrt{2}$ E) $\frac{3\pi}{4}$

9. The exact value of $(\cos^2\frac{\pi}{4}+\tan\frac{\pi}{4})$ is

A) 2   B) 1   C) $\frac{1}{4}$ D) $\frac{1}{3}$ E) $\frac{3}{2}$

10. tanx cosx=

A) 1+tanx   B) sin x   C) – cosx   D) $\frac{1}{\sin x}$ E) none of the above

11. $\sin^2 30°$ -tan45° =

A) 1/4   B) -$\frac{1}{2}$ C) $\frac{1}{2}$ D) –3/4   E) none of the above
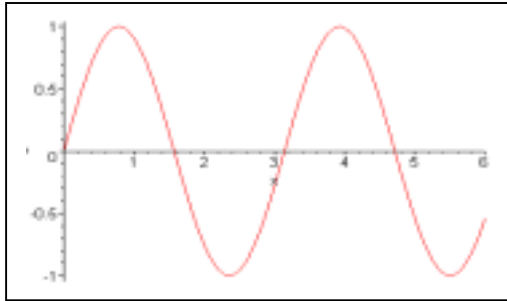
12. Perform the addition and simplify: $2\tan x\cos^2 x =$

A) cos2x   B) $2\sec^2 x +1$ C) $2\cos^2 x$ D) sin2x   E) none of the above
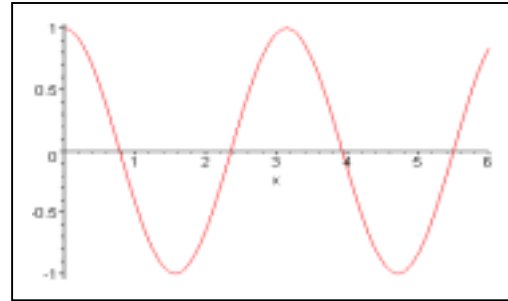
13. $\dfrac{\sin(x)}{\tan(x)} - \cos x$ is equal to
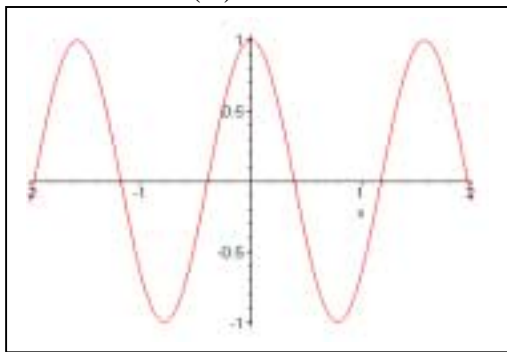
A) tanx   B) –sinx   C) cosx   D) –cot x   E) 0
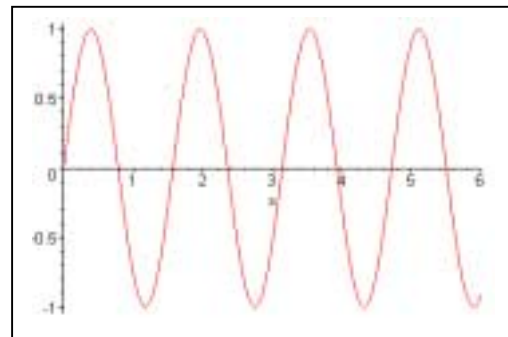
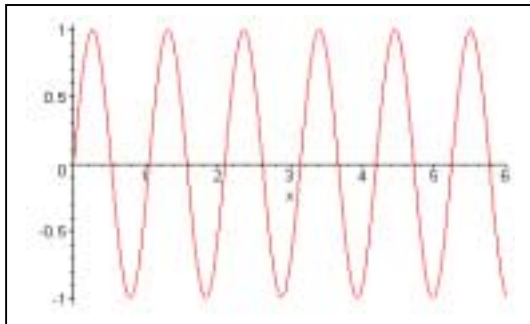14. Which of the following is the graph of y=cos4x?

(A)

(B)

(C)

(D)

(E)

15. For which angles θ, with $0° \le \theta \le 180°$, is $\cos 2\theta = \dfrac{\sqrt{2}}{2}$

A) $22.5°$ and $157.5°$ B) $60°$ and $120°$ C) $125°$ D) $0°$ and $22.5°$ E) none

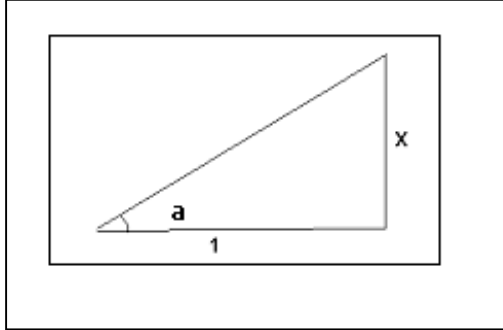16. If $2\cos\theta - \sqrt{3} = 0$ and $0° \le \theta < 360°$, then
A) $\theta = 15°$ or $\theta = 165°$ B) $\theta = 60°$ or $\theta = 120°$
C) $\theta = 30°$ or $\theta = 150°$ D) $\theta = 30°$ or $\theta = 330°$ E) $\theta = 30°$ or $\theta = 210°$

17. For which values of x in the interval $0 < x < \pi$ does $\tan^2 x - \tan x = 0$?

A) 0, $\dfrac{\pi}{2}$ and 2π B) $\dfrac{\pi}{4}$ only   C) 0 and 1   D) $0, \dfrac{\pi}{2}$, and $\dfrac{3\pi}{2}$ E) none

18. In the figure shown, tan(a)+sina=

A) $X\left(\dfrac{1}{\sqrt{X^2+1}}+1\right)$

B) $\dfrac{\sqrt{1+X^2}}{X}$

C) $\dfrac{1}{X}$

D) $\dfrac{1}{\sqrt{1+X^2}}+1$
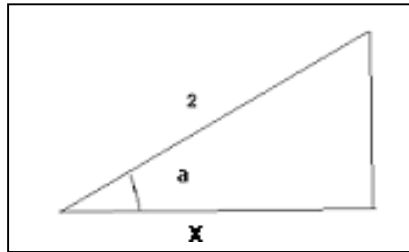
E) $\dfrac{X}{\sqrt{1+X^2}}$

19. Evaluate $\cos^{-1}\left(\dfrac{\sqrt{3}}{2}\right)$. State your answer in radian measure. (Note: $\sin^{-1}$ means the same as arcsin.)

A) $\dfrac{\pi}{6}$ B) $-\dfrac{\pi}{3}$ C) $-\dfrac{\pi}{4}$ D) $-\dfrac{\pi}{6}$ E) $\dfrac{\pi}{4}$

20. Use an inverse trigonometric function to write a as a function of x.

A) $a=\dfrac{\sqrt{4-(X+1)^2}}{2}$

B) $a = \dfrac{2}{X+1}$

C) $a = 2\cos^{-1}\left(\frac{X}{2}\right)$

D) $a = \tan^{-1}\left(\dfrac{X+1}{2}\right)$

E) $a = \sin^{-1}\left(\dfrac{\sqrt{4-X^2}}{2}\right)$

Solution:

1. B
2. E
3. C
4. D
5. D
6. E
7. D
8. A
9. E
10. E
11. D
12. D
13. E
14. C
15. A
16. D
17. E
18. A
19. A
20. E