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 $\cos 60^\circ$ is

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

2. What is the radian measure of the angle whose degree measure are 240°?

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

3. If $\sin\theta = \frac{3}{5}$ and $\cos\theta = \frac{4}{5}$, then θ lies in

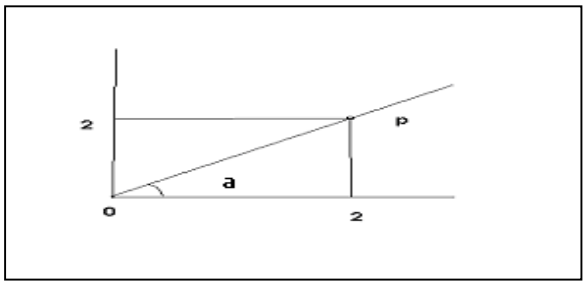
A) quadrant I B) quadrant II
C) quadrant III D)quadrant IV E) none of the above

4. Of the following, which is the smallest?

A) sin0 B) $\sin\frac{\pi}{6}$ C) $\sin\frac{\pi}{4}$ D) $\sin\frac{\pi}{3}$ E) $\sin\frac{\pi}{2}$

5. If the coordinates (x, y) of the point p in the figure are (2,2), then than tan(a)=

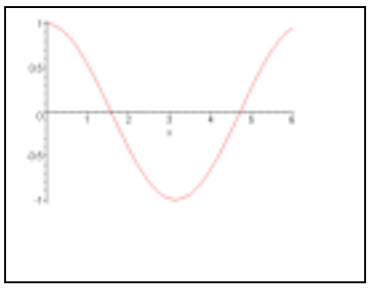
A) $1/3$
B) $3/4$
C) $3/\sqrt{10}$
D) $1/\sqrt{10}$
E) 1



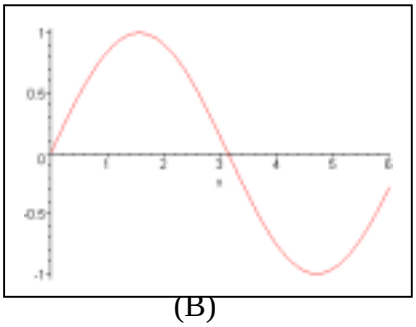
6. The graph of the function $y=\tan(x-\pi)$ has asymptotes at

A) $x=0$ and $x=\pi$ B) $x=\pi$ and $x=2\pi$
C) $x=\frac{\pi}{2}$ and $x=\frac{3\pi}{2}$ D) $x=-\pi$ and $x=\pi$ E) $x=0$ and $x=\frac{\pi}{2}$

7. Which of the following is the graph of y=sinx?



(A)



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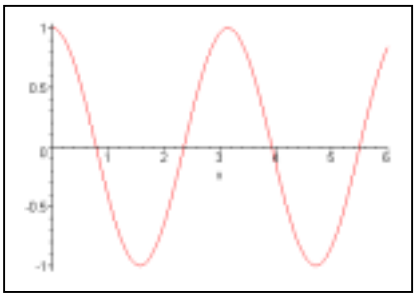

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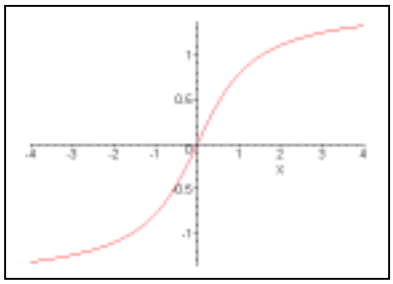

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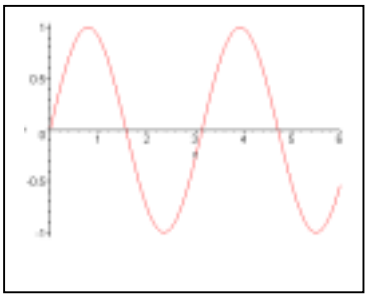


(E)

8. The exact value of $\tan 45^\circ$ is

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

9. The exact value of $\sin^2(\frac{\pi}{4})+\frac{1}{2}$ is

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

10. (sinx+cosx)/sinx=

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

11. $\sin^2 60^\circ - \cos^2 30^\circ =$

A) 1 B) $-\frac{1}{2}$ C) $\frac{1}{2}$ D) 0 E) none of the above

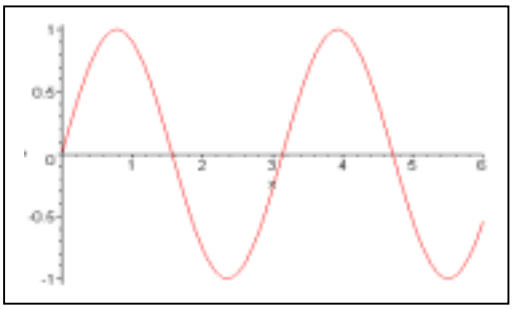
12. Perform the addition and simplify: $\frac{1+\sin x}{\cos x} - \frac{\cos x}{1-\sin x} =$

A) 2 B) $2\sec^2 x$ C) $2\cos^2 x$ D) 0 E) none of the above

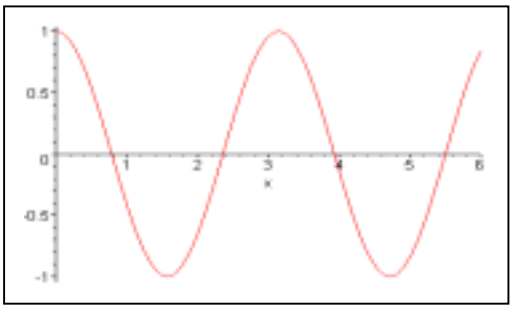
13. $\frac{\cos(x)}{\sin(-x)}$ is equal to

A) tanx B) –tanx C) cot x D) –cot x E) none of the above

14. Which of the following is the graph of y=sin4x?



(A)



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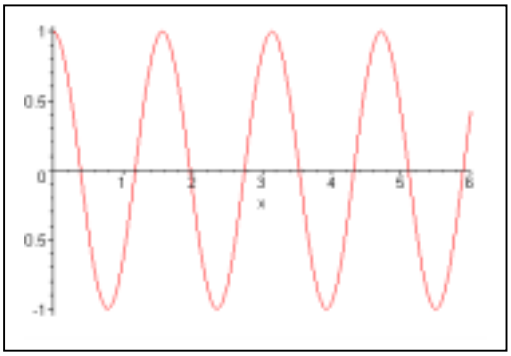

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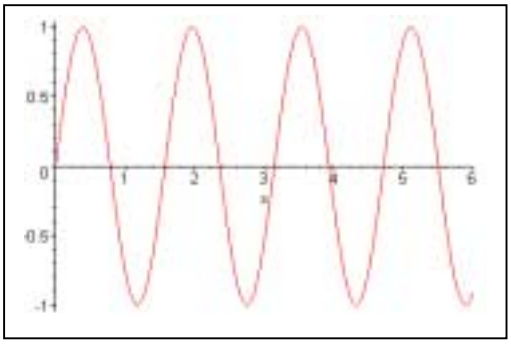

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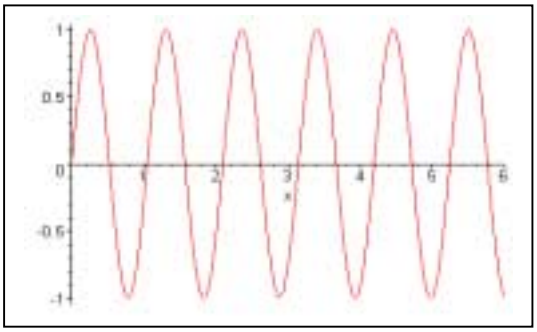


(E)

15. For which angles θ, with $0^\circ \le \theta \le 180^\circ$, is $\sin 2\theta = -1$?

A) 30° and 150° B) 60° and 120° C) 135° D) 0° and 120° E) none

16. If $2\sin\theta - \sqrt{3} = 0$ and $0^\circ \le \theta < 360^\circ$, then

A) $\theta = 15^\circ$ or $\theta = 165^\circ$ B) $\theta = 60^\circ$ or $\theta = 120^\circ$

C) $\theta = 30^\circ$ or $\theta = 150^\circ$ D) $\theta = 30^\circ$ E) $\theta = 30^\circ$ or $\theta = 210^\circ$

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

A) 0, $\frac{\pi}{2}$ B) $\frac{\pi}{2}$ only C) 0 and 1 D) 0, $\frac{\pi}{2}$, and $\frac{3\pi}{2}$ E) π

18. In the figure shown, sin(a)=

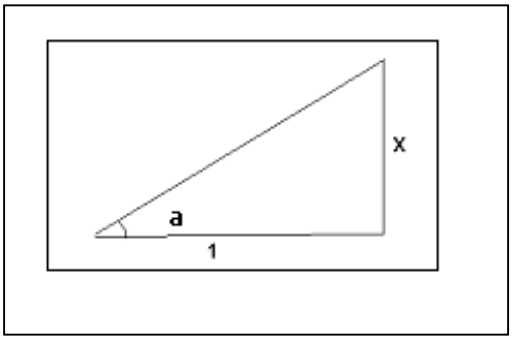
A) $\sqrt{1+X^2}$

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

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

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

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



19. Evaluate $\sin^{-1}(\frac{1}{2})$. State your answer in radian measure. (Note: $\sin^{-1}$ means the same as arcsin.)

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

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

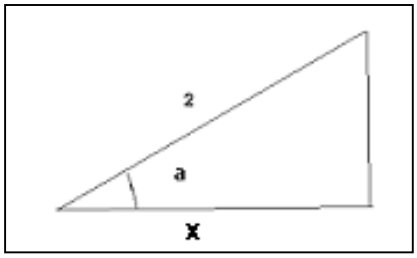
A) a=$\frac{\sqrt{4-(X+1)^2}}{2}$

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

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

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

E) $a=\sin^{-1}(\frac{2}{X+1})$



Solution:

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