

**Precalculus Midterm Review**

Name \_\_\_\_\_

1. Find, in degrees, the measure of a  $\frac{2}{3}$  clockwise rotation.

- a)  $135^\circ$                       b)  $-120^\circ$                       c)  $-240^\circ$                       d)  $-270^\circ$

2. Find the exact value of  $\cot 120^\circ$ .

- a)  $-\sqrt{3}$                       b)  $-\frac{\sqrt{3}}{3}$                       c)  $-\frac{\sqrt{3}}{2}$                       d)  $-\frac{\sqrt{2}}{2}$

3. What could the terminal points of a  $585^\circ$  angle drawn in standard position?

- a)  $\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$                       b)  $\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$                       c)  $\left(-\frac{1}{2}, -\frac{1}{2}\right)$                       d)  $\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$

4.  $\cos 330^\circ - \sin 315^\circ =$

- a)  $\sqrt{3}$                       b)  $\frac{\sqrt{3} + 2}{2}$                       c)  $\frac{\sqrt{3} + \sqrt{2}}{2}$                       d)  $\frac{\sqrt{3} - \sqrt{2}}{2}$

5. Which of the following statements is impossible?

- a)  $3 \sin \theta = -5$                       b)  $224 \tan \theta = 225$                       c)  $5 \cos \theta = -4$                       d)  $\cos A + \sin B = 1.99$

6. If  $\sin \theta = -\frac{8}{17}$ ,  $\theta$  in quadrant III, which of the following has the largest value?

- a)  $\cos \theta$                       b)  $\sec \theta$                       c)  $\tan \theta$                       d)  $\cot \theta$

7. Going from  $A$  to  $B$ , a plane travels on heading  $200^\circ$ . If the plane returns from  $B$  to  $A$ , its heading is

- a)  $340^\circ$                       b)  $70^\circ$                       c)  $20^\circ$                       d)  $160^\circ$

8. If  $\cos \theta = \frac{3}{5}$ ,  $\theta$  in quadrant IV, find  $\tan 2\theta$

- a)  $\frac{3}{4}$                       b)  $-\frac{3}{4}$                       c)  $-\frac{4}{3}$                       d)  $\frac{4}{3}$

9. Which of the following curves has the longest period?

- a)  $y = 2 \cos x$                       b)  $y = 4 \sin\left(\frac{1}{3}x\right)$                       c)  $y = 5 \cos(4x)$                       d)  $y = -2 \sin\left(\frac{1}{10}x - 10^\circ\right)$

10. Find the phase shift of  $y = 3 + \cos\left(\frac{1}{2}x - 20^\circ\right)$

- a)  $10^\circ$  left                      b)  $10^\circ$  right                      c)  $40^\circ$  left                      d)  $40^\circ$  right

11. Which of the following is **not** equal to  $\cos x$ ?

- a)  $\frac{\sin x}{\tan x}$                       b)  $+\sqrt{1 - \sin^2 x}$                       c)  $\frac{1}{\sec x}$                       d) All are

12. Which of the following measurements is different from the others?

- a) 10 rpm                      b)  $\frac{\pi \text{ ft}}{\text{sec}}$                       c)  $\frac{1^\circ}{\text{hr}}$                       d)  $\frac{1}{5 \text{ min}}$

13. In triangle  $ABC$ , if  $C = 96^\circ$ ,  $b = 20$ , and  $c = 15$ , to find  $B$ , you would use

- a) Law of cosines                      b) Law of sines                      c) Basic trig functions                      d) None would help.

14. Which of the following is a solution to the equation  $\cos^2 x + \cos x = 0$  ?

- I.  $x = 90^\circ$                       II.  $x = 180^\circ$                       III.  $x = 270^\circ$

- a) I only                      b) I and III only                      c) II and III only                      d) I, II and III

15. In triangle  $ABC$ ,  $B = 25^\circ$ ,  $b = 9$ , and  $c = 11$ . How many triangles are possible?

- a) 2 triangles                      b) 1 triangle                      c) no triangles                      d) infinite triangles

1. c	2. b	3. c	4. c	5. a
6. d	7. c	8. c	9. d	10. d
11. d	12. b	13. d	14. d	15. a