

Exam Review Problem Set 2

Name: \_\_\_\_\_

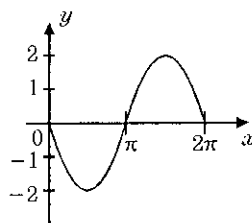
Date: \_\_\_\_\_

1. What is a logarithmic equation for the formula  $t = \pi\sqrt{\frac{\ell}{g}}$ ? 1. \_\_\_\_\_

- A.  $\log t = \frac{\log \pi + \log \ell - \log g}{2}$       B.  $\log t = \log \pi + \frac{1}{2}(\log \ell - \log g)$   
 C.  $\log t = \log \pi + 2(\log \ell - \log g)$       D.  $\log t = \log \pi + \frac{1}{2} \log \ell - \log g$

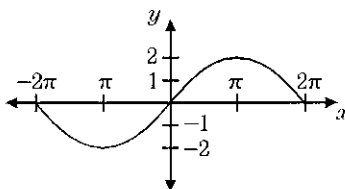
2. Which is an equation of the graph shown? 2. \_\_\_\_\_

- A.  $y = \sin 2x$       B.  $y = -\sin 2x$   
 C.  $y = -2 \sin x$       D.  $y = 2 \sin x$



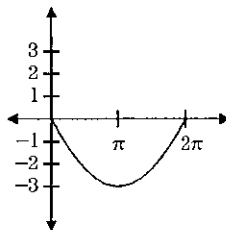
3. Which equation represents the graph below? 3. \_\_\_\_\_

- A.  $y = 2 \sin 2x$       B.  $y = \frac{1}{2} \sin x$   
 C.  $y = 2 \sin \frac{1}{2}x$       D.  $y = 2 \cos 2x$



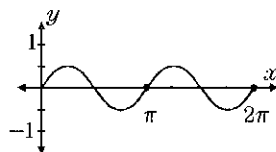
4. Which equation is represented by the graph in the accompanying diagram? 4. \_\_\_\_\_

- A.  $y = 3 \sin x$       B.  $y = 3 \sin \frac{1}{2}x$   
 C.  $y = -3 \sin x$       D.  $y = -3 \sin \frac{1}{2}x$



5. Which equation is represented in the accompanying graph? 5. \_\_\_\_\_

- A.  $y = 2 \sin 2x$       B.  $y = \frac{1}{2} \sin \frac{1}{2}x$   
 C.  $y = 2 \sin \frac{1}{2}x$       D.  $y = \frac{1}{2} \sin 2x$



6. What is the value of  $\sin(\arccos \frac{1}{x})$ ? 6. \_\_\_\_\_
- A.  $\frac{\sqrt{1-x^2}}{x}$       B.  $\frac{\sqrt{1+x^2}}{x}$       C.  $\frac{\sqrt{x^2-1}}{x}$       D.  $\frac{x}{\sqrt{x^2+1}}$
7. What is the value of  $\tan(\arccos \frac{\sqrt{3}}{2})$ ? 7. \_\_\_\_\_
- A. 1      B.  $\frac{1}{2}$       C.  $\sqrt{3}$       D.  $\frac{\sqrt{3}}{3}$
8. In which interval of  $f(x) = \cos(x)$  is the inverse also a function? 8. \_\_\_\_\_
- A.  $-\frac{\pi}{2} < x < \frac{\pi}{2}$       B.  $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$       C.  $0 \leq x \leq \pi$       D.  $\frac{\pi}{2} \leq x \leq \frac{3\pi}{2}$
9.  $\sin 96^\circ \cos 24^\circ + \cos 96^\circ \sin 24^\circ$  is equivalent to 9. \_\_\_\_\_
- A.  $\sin 60^\circ$       B.  $-\sin 60^\circ$       C.  $\cos 60^\circ$       D.  $-\cos 60^\circ$
10. Which expression is equivalent to  $\cos 100^\circ \cos 80^\circ - \sin 100^\circ \sin 80^\circ$ ? 10. \_\_\_\_\_
- A. 1      B. 0      C. -1      D.  $\cos 20^\circ$
11. If  $\sin A = \frac{3}{5}$ ,  $\sin B = \frac{2}{3}$ , and  $\angle A$  and  $\angle B$  are acute angles, what is the value of  $\cos(A - B)$ ? 11. \_\_\_\_\_
- A.  $-\frac{2}{3}$       B.  $\frac{4\sqrt{5}-6}{15}$       C.  $\frac{4\sqrt{5}+2}{5}$       D.  $\frac{4\sqrt{5}+6}{15}$
12. If  $\cos 2\theta = 1$ , a value of  $\theta$  is 12. \_\_\_\_\_
- A.  $45^\circ$       B.  $90^\circ$       C.  $180^\circ$       D.  $270^\circ$
13. The expression  $\sin 2A + \cos A$  is equivalent to 13. \_\_\_\_\_
- A.  $\cos A(2 \sin A + 1)$       B.  $\cos A(\cos A + 1)$   
 C.  $2(\sin A + \cos A)$       D.  $\cos A(\sin A + 1)$
14. For all values of  $A$  for which the expressions are defined,  $\frac{\sin 2A}{\cos A} - \sin A$  is equivalent to 14. \_\_\_\_\_
- A. 1      B.  $\cos A$       C.  $\sin A$       D.  $2 \sin A$

15. The expression  $\sec x \sin 2x$  is equivalent to 15. \_\_\_\_\_
- A.  $\frac{1}{2}$                       B. 2                      C.  $2 \cos x$                       D.  $2 \sin x$
16. What is the total number of solutions for the equation  $3 \tan^2 A + \tan A - 2 = 0$  in the interval  $0 \leq A \leq \pi$ ? 16. \_\_\_\_\_
- A. 1                      B. 2                      C. 3                      D. 4
17. Which value of  $\theta$  satisfies the equation  $2 \cos^2 \theta - \cos \theta = 0$ ? 17. \_\_\_\_\_
- A.  $\frac{\pi}{3}$                       B.  $\frac{\pi}{4}$                       C.  $\frac{\pi}{6}$                       D. 0
18. In triangle  $ABC$ , if  $m\angle A = 30$ ,  $a = 6$ , and  $b = 8$ , then  $\sin B$  is 18. \_\_\_\_\_
- A.  $\frac{2}{3}$                       B.  $\frac{3}{4}$                       C.  $\frac{6}{10}$                       D.  $\frac{8}{10}$
19. A 100-foot wire is extended from the ground to the top of a 60-foot pole, which is perpendicular to the level ground. To the *nearest degree*, what is the measure of the angle that the wire makes with the ground? 19. \_\_\_\_\_
- A. 31                      B. 37                      C. 53                      D. 59
20. What is the radian measure of the smaller angle formed by the hands of a clock at 7 o'clock? 20. \_\_\_\_\_
- A.  $\frac{\pi}{2}$                       B.  $\frac{2\pi}{3}$                       C.  $\frac{5\pi}{6}$                       D.  $\frac{7\pi}{6}$
21. If  $\tan \theta = \frac{1 + \sqrt{3}}{4}$ , then angle  $\theta$  may terminate in Quadrant 21. \_\_\_\_\_
- A. I or III only                      B. II or IV only                      C. III or IV only                      D. I, II, III, or IV
22. If  $\tan A > 0$  and  $\cos A < 0$ , in which quadrant does  $\angle A$  terminate? 22. \_\_\_\_\_
- A. I                      B. II                      C. III                      D. IV
23. If  $\sin A > 0$  and  $(\sin A)(\cos A) < 0$ , in which quadrant does  $\angle A$  terminate? 23. \_\_\_\_\_
- A. I                      B. II                      C. III                      D. IV
24. If  $\sec x < 0$  and  $\cot x < 0$ , in which quadrant does the terminal side of angle  $x$  lie? 24. \_\_\_\_\_
- A. I                      B. II                      C. III                      D. IV

25. A commercial artist plans to include an ellipse in a design and wants the length of the horizontal axis to equal 10 and the length of the vertical axis to equal 6. Which equation could represent this ellipse?

A.  $9x^2 + 25y^2 = 225$

B.  $9x^2 - 25y^2 = 225$

C.  $x^2 + y^2 = 100$

D.  $3y = 20x^2$

25. \_\_\_\_\_