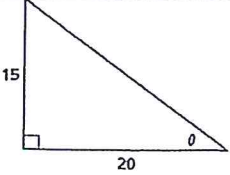
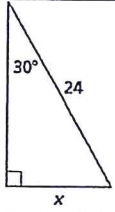
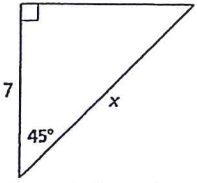


MATH 3: Cumulative Final Exam Review Ch 6-10 and Conic Sections

 <p>1. Find the six trigonometric functions of the angle.</p>	 <p>2. Find the value of x</p>	 <p>3. Find the value of x</p>
<p>4. Find one positive angle and one negative angle that are coterminal with the given angle.</p> <p>a. 88°</p> <p>b. $-\frac{3\pi}{4}$</p>	<p>5. Convert the degree measure to radians or the radian measure to degrees.</p> <p>a. 110°</p> <p>b. $-\frac{4\pi}{3}$</p>	<p>6. Use the unit circle to evaluate the six trigonometric functions of θ.</p> <p>a. 135°</p> <p>b. $-\frac{\pi}{3}$</p>
<p>7. Graph the function: $g(x) = \sin 4x$</p>	<p>8. Graph the function: $g(x) = \cos x + 3$</p>	<p>9. A normal distribution has mean of 26 and standard deviation of 3. Find the indicated probability for a randomly selected x-value from the distribution.</p> <p>a. between 23 and 26</p> <p>b. at least 17</p> <p>c. between 20 and 35</p>
<p>10. Identify the population and the sample. Describe the sample. In a school district, a survey of 1230 high school students found that 1144 of them felt that the school should keep the music program.</p>	<p>11. Identify the type of sample and explain why the sample is biased. A school newspaper is doing a story about study habits and wants to know how many hours, on average, students spend doing homework each night. The student reporter asks students in an AP Calculus class.</p>	
<p>12. Which expressions are equivalent to 1?</p> <p>$\cot x \sec x \sin x$ $\frac{\sin(-x) \cot x}{\cos(-x)}$ $\sec^2 x - \tan^2 x$ $\frac{\sin\left(\frac{\pi}{2} - x\right)}{\cos x}$</p>		

13. Order the angles from the smallest to largest. Explain your reasoning

$$\cos \theta_1 = 1, \cos \theta_2 = \frac{1}{2}, \cos \theta_3 = \frac{\sqrt{3}}{2}, \cos \theta_4 = \frac{\sqrt{2}}{2}, \cos \theta_5 = \frac{3}{5}, \cos \theta_6 = \frac{1}{10}$$

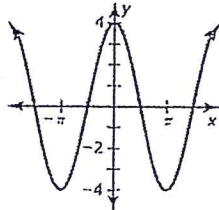
Which function is *not* represented by the graph?

A. $y = 4 \cos x$

B. $y = 4 \sin\left(\frac{\pi}{2} - x\right)$

C. $y = 4 \sin\left(x - \frac{\pi}{2}\right)$

D. $y = -4 \cos(\pi - x)$



14.

Use the sequence $\frac{1}{2}, -\frac{5}{2}, \frac{25}{2}, -\frac{125}{2}, \dots$ to answer the following.

a. Describe the pattern.

b. Write the next term.

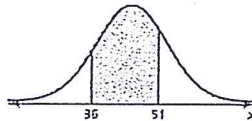
c. Graph the first five terms.

15. d. Write a rule for the n th term.

16. For all students taking a county-wide Fitness Level Test over a period of five years, the standard deviation was 3.2. During the same five years, a group of 300 students who took the test had a standard deviation of 2.7. Classify each standard deviation as a parameter or a statistic. Explain.

17.

The normal distribution shown has a mean of 45 and a standard deviation of 6.



a. Find the percent of the area under the normal curve that is represented by the shaded region.

b. Describe another interval under the normal curve that has the same area.

18. Write an equation of the parabola with directrix $x = -1$ and focus $(1, -2)$.

19. Solve:

$$\frac{5}{2-x} + \frac{4}{x+2} = \frac{9}{2}$$

Calculate the sum of the infinite geometric sequence.

$$\frac{3}{2}, \frac{1}{2}, \frac{1}{6}, \frac{1}{18}, \dots$$

20.

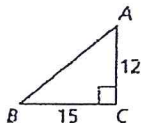
21. Find the inverse of:

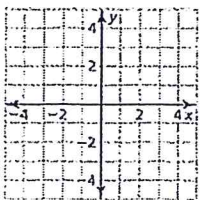
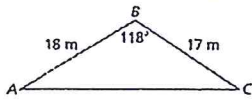
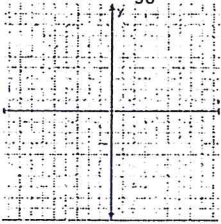
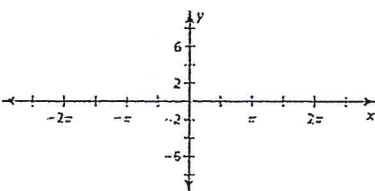
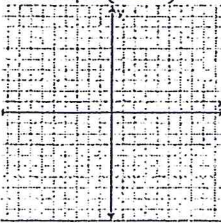
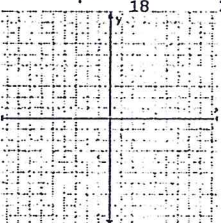
$$f(x) = -2 - \frac{1}{4}x$$

22. What is the domain of

$$f(x) = \frac{3}{2+x}?$$

23. Solve the right triangle:



<p>Graph $x^2 + y^2 = 16$.</p>  <p>24.</p>	<p>25. Compute $\sum_{j=0}^5 (3j + 2)$.</p>	<p>26. Solve the triangle:</p> 
<p>27. Simplify $\sin(-\theta) \cdot \sec\theta$.</p>	<p>28. Graph $\frac{(x+3)^2}{36} + \frac{(y-4)^2}{81} = 1$</p> 	<p>Graph $y = 4 \sin\left(x + \frac{\pi}{2}\right)$</p>  <p>29.</p>
<p>30. Graph $(x - 5)^2 = 8(y + 4)$</p> 	<p>31. Graph $\frac{(y+2)^2}{18} - \frac{(x+1)^2}{25} = 1$</p> 	<p>32. In a survey of 400 college students, 27% said they had transferred to a new school after 1 year of attendance. Give an interval that is likely to contain the exact percentage of students who transferred to a new school after 1 year of attendance.</p>
<p>33. Classify and convert from general form to standard form:</p> <p>A) $y^2 + 8x - 2y - 15 = 0$</p> <p>B) $x^2 - 9y^2 + 54y - 90 = 0$</p> <p>C) $9x^2 + 36y^2 + 54x - 144y - 99 = 0$</p>	<p>34. Write a rule for the n^{th} term and find the 12^{th} term.</p> <p>a) 9, 17, 25, 33, ...</p> <p>b) $-10, 5, -\frac{5}{2}, \frac{5}{4}, \dots$</p> <p>Find the sum of the first 12 terms in each of a) and b) above.</p> <p>a)</p> <p>b)</p>	