**Trigonometry: Functions & Graphs**

**Unit Test**

**Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is a reference angle of $\frac{4π}{3}$?

A. $\frac{π}{6}$ B. $\frac{π}{4}$ C. $\frac{π}{3}$ D. Undefined

1. If cos x = $\frac{3}{4}$, determine the smallest positive angle x, in radians.

A. 0.64 B. 0.85 C. 46.01 D. 0.72

1. The point (5, -6) is on the terminal arm of standard position angle $θ$. Determine the smallest positive measure of $θ$ in radians.

A. 0.69 B. 0.88 C. 5.41 D. 5.59

1. Given sin A = $\frac{4}{5}$ and sec A < 0, find the ratio for cot A.

A. = - $\frac{4}{3}$ B. = - $\frac{3}{4}$ C. = $\frac{3}{4}$ D. = $\frac{4}{3}$

1. Evaluate: sec (- $\frac{7π}{6}$)

A. - $\frac{2√3}{3}$ B. $\frac{2√3}{3}$ C. - $\frac{√3}{2}$ D.$ \frac{√3}{2}$

1. What is the period of the function y = 5tan x?

A. 5 B. $\frac{π}{5}$ C. $π$ D. 2$π$

1. Give the range of the function y = 2sin 3x + 5.

A. -7 $\leq $ y $\leq $ -3 B. -2 $\leq $ y $\leq $ 2

C. 0 $\leq $ y $\leq $ 4 D. 3 $\leq $ y $\leq $ 7

1. A circle has a radius of 18 cm. If the length of arc AB is 21$π$ cm, as shown in the diagram, determine the measure of the central angle $θ$ in degrees.

1. Determine a, b, c, d for the following graph:

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|  | -2 | $$π$$ |  |  | - | $$π$$ |  |  | 0 |  |  |  | $$ π$$ |  |  |  | 2 | $$π$$ |  |
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 y = a cos b(x – c) + d

1. Accurately sketch at least one period of y = 3sin 2x – 1. (Plot all important points on both axes.)
2. At a seaport, the water has a maximum depth of 16 m at midnight. After this maximum depth, the first minimum depth of 4 m occurs 5.8 h later. Assume that the relation between the depth in metres and the time in hours is a sinusoidal function. What depth (to the nearest meter) will the water reach 3.5 hours after midnight?