

Math 1523 Exam One (Form C) name: _____

Fall, 2013 section: _____ instructor: _____

Part One. Multiple Choice. Place answers on scantron. Fill out name and ID

number. Place section number in Special Codes section.

1) In which two quadrants is the cosine negative?

- A) 3 and 4 B) 2 and 3 C) 2 and 4 D) 1 and 4 E) 1 and 2

2) Which pair of angles have the same reference angle?

- A) 110° and 280° B) 110° and -160° C) 170° and 260°
D) -100° and 280° E) -140° and 310°

3) Given that $\cos A = \frac{55}{73}$ and angle A terminates in the fourth quadrant, then find the value of $\cot A$.

- A) $-\frac{55}{48}$ B) $-\frac{48}{55}$ C) $\frac{55}{48}$ D) $-\frac{73}{48}$ E) $\frac{48}{55}$

4) What is the period of the graph with equation $y = 5 + 4 \sin\left(\frac{3\pi x}{5}\right)$ in radians.

- A) 4 B) 9 C) $\frac{6}{5}$ D) 10 E) $\frac{10}{3}$

5) Find the exact value of: $\sin\frac{\pi}{3} + \cos\frac{\pi}{6}$

- A) $\frac{\sqrt{3}}{4}$ B) $\sqrt{2}$ C) $\frac{\sqrt{13}}{2}$ D) $\sqrt{3}$ E) $\frac{\sqrt{3}}{2} + 1$

6) Which of the following is a factor of $x^3 - 17x^2 + 66x$?

- A) $x - 3$ B) $x + 11$ C) $x - 6$ D) $x^2 - 11$ E) $x - 2$

7) What is the range of the function: $y = 7 \cos (2x + 4) + 5$?

- A) $0 \leq y \leq 12$ B) $-12 \leq y \leq 12$ C) $0 \leq y \leq 7$
D) $5 \leq y \leq 7$ E) $2 \leq y \leq 12$

8) If $a^2 = b^2 + d^2$ and $\tan C = \frac{d}{b}$ and angle C is in the first quadrant, then what is the value of $\sec C$?

- A) $\frac{b}{a}$ B) $\frac{d}{a}$ C) $\frac{a}{b}$ D) $\frac{a}{d}$ E) $\frac{b}{d}$

9) What is the length of the arc intercepted by a central angle of 105° in a circle whose radius is of length 48?

- A) 28π B) 14π C) 672π D) 96π E) 7π

10) $\cos \left(\tan^{-1} \left(\frac{4}{x} \right) \right) = ??$

- A) $\frac{x}{\sqrt{x^2+16}}$ B) $\frac{x}{x+4}$ C) $\frac{x}{4-x}$ D) $\frac{\sqrt{16+x^2}}{x}$ E) $\frac{\sqrt{16+x^2}}{4}$

11) Convert 264° to radian measure.

- A) $\frac{11\pi}{30}$ B) $\frac{11\pi}{15}$ C) $\frac{44\pi}{15}$ D) $\frac{22\pi}{15}$ E) $\frac{45\pi}{60}$

12) Given a right triangle with the hypotenuse of length 89 and the smallest angle is of measure 26 degrees, find the perimeter of this triangle, to the nearest whole number.

- A) 119 B) 215 C) 220 D) 208 E) 203

13) If the point $(-48, 20)$ is on the terminal ray of angle X , then what is the value of $\sin X$?

- A) $\frac{5}{17}$ B) $-\frac{5}{13}$ C) $\frac{5}{13}$ D) $-\frac{12}{13}$ E) $-\frac{5}{12}$

14) Find the solution to this equation: $7 - 3(8 - 5x) = 148$

- A) $x = -11$ B) $x = 11$ C) $x = \frac{165}{8}$ D) $x = \frac{131}{15}$ E) $x = -13$

15) The temperature in a room, T , is given by the equation:

$$T = 70 + 36 \cos\left(\frac{3\pi x}{5} + 7\pi\right)$$

where T is the temperature in Fahrenheit degrees and

x is the number of hours after noon. What is the

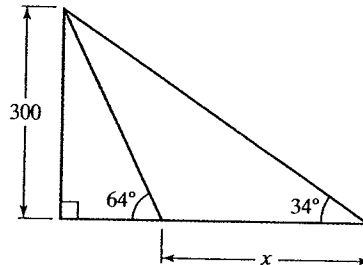
temperature, in degrees, in the room 10 hours after noon?

- A) 34 B) 70 C) 106 D) 128 E) 97

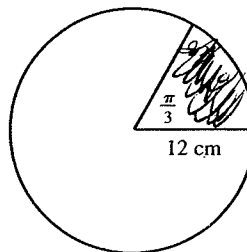
16) Darken the letter C on this question (identifies the form)

Part Two. Show work on the attached answer sheet and place answer in the box provided.

- 1) Given the right triangle to the right, find the length of line segment x , to the nearest whole number.



- 2) Find the area of the given sector of the circle to the right to the nearest whole number.



- 3) Given a right triangle with sides of length 8, 15 and 17, find the measure of the smallest angle to the nearest degree.

- 4) Given that $\csc X = -\frac{7}{5}$ and X terminates in the third quadrant, find the exact value of $\cos X$ [no decimals]

- 5) Find all solutions between $0 < x < 2\pi$, such that $\sin x = \csc x$

- 6) Given the right triangle to the right, find the length of line segment b .
[nearest whole number]

