

Name: _____

PreCalc ~ Quarterly 3

Kes

Date: _____

Mr. Mendreski

Answer all questions below. No partial credit will be given.

1. IV If $\sec x = 3$ and $\cot x < 0$, in what quadrant does angle x terminate?
2. 128.6° How many degrees, to the nearest tenth, are in $\frac{5\pi}{7}$ radians?
3. $\frac{7\pi}{4}$ Rewrite 315° in radian measure.
4. A As angle B increases from 180° to 270° , the value of $\sin B$:
a) decreases from 0 to -1 b) decreases from 1 to 0
c) increases from -1 to 0 d) increases from 0 to 1
5. -2 Find the exact value of $\csc 210^\circ$
6. A If $\sin \theta = \frac{c}{a}$, then the value of the expression $(\sin \theta)(\csc \theta)$ is equivalent to:
a) 1 b) c c) $\frac{1}{c^2}$ d) c^2
7. $-\frac{3}{4}$ If $\cos \theta = -\frac{4}{5}$ and θ lies in Quadrant II, what is the value of $\tan \theta$?
8. $\sin x$ What is $\frac{\tan x}{\sec x}$ expressed in simplest form?
9. 150° What value of x in the interval $0^\circ \leq x \leq 180^\circ$ satisfies the equation $\sqrt{3} \tan x + 1 = 0$?
10. 180° Solve algebraically for all values of θ in the interval $0^\circ \leq \theta < 360^\circ$ that satisfy the equation $\frac{\sin^2 \theta}{1 + \cos \theta} = 1$.

11. ~~X~~ In $\triangle ABC$, $\angle A = 25^\circ$, $a = 10$, and $b = 7$. Find $\angle B$. Round to nearest tenth.

12. ~~X~~ In $\triangle ABC$, $a = 14$, $b = 16$, and $c = 20$. Find $m\angle A$ to the nearest tenth of a degree.

13. ~~X~~ In $\triangle ABC$, $a = 19$, $c = 10$, and $m\angle A = 111$. Which statement can be used to find the value of $\angle C$?

(1) $\sin C = \frac{10}{19}$

(3) $\sin C = \frac{10 \sin 21^\circ}{19}$

(2) $\sin C = \frac{19 \sin 69^\circ}{10}$

(4) $\sin C = \frac{10 \sin 69^\circ}{19}$

14. 2 How many solutions are there for x in the equation $\sin^2 x - 2\sin x = -1$

(1) 1

(2) 2

(3) 3

(4) 0

15. ~~X~~ If $\cos \alpha = -\frac{2}{3}$ and $\tan \beta = \frac{2}{3}$, find $\sin(\alpha - \beta)$.

16. 3 In a circle, a central angle of 3 radians intercepts an arc of 9 inches. Find the length of the radius of the circle.

17. Sine Rewrite the expression using only \sin and/or \cos $\frac{\tan \theta}{\sec \theta}$

18. 210° If the coordinates of $\angle A$ are $\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$, find the measure of angle A .

19. ~~X~~ Find the exact value of the area of an equilateral triangle if the measure of one side is 4.

20. 1 What is the measure of the radius of the unit circle?