

Name _____ Date _____ Period _____

Calculator Permitted

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**Find the exact value by using a half-angle identity.**

1) $\cos\left(-\frac{\pi}{8}\right)$ 1) _____
 A) $\frac{1}{2}\sqrt{2-\sqrt{2}}$ B) $\frac{1}{2}\sqrt{1-\sqrt{2}}$ C) $\frac{1}{2}\sqrt{2+\sqrt{2}}$ D) $\frac{1}{2}\sqrt{1+\sqrt{2}}$

2) $\csc 0.1817 =$ 2) _____
 A) 1.0167 B) 0.1807 C) 0.9835 D) 5.5340

Simplify the expression.

3) $\frac{1}{1-\cos x} + \frac{1}{1+\cos x}$ 3) _____
 A) $2 \sec^2 x$ B) $2 \csc x$ C) $\csc^2 x$ D) $2 \csc^2 x$

4) $\frac{1-\sin^2 x}{\sin x - \csc x}$ 4) _____
 A) $-\sin x$ B) $-\cos x$ C) $\sin^2 x$ D) $\cos^2 x$

5) $\csc\left(\frac{\pi}{2} - x\right) \cos(-x)$ 5) _____
 A) 1 B) $\cos^2 x$ C) -1 D) $-\csc^2 x$

Use the fundamental identities to find the value of the trigonometric function.

6) Find $\csc \theta$ if $\cot \theta = -\sqrt{35}$ and $\cos \theta < 0$. 6) _____
 A) $\frac{1}{6}$ B) $-\frac{1}{6}$ C) -6 D) 6

Convert the angle to decimal degrees and round to the nearest hundredth of a degree.

7) $82^\circ 19' 42''$ 7) _____
 A) 82.39 B) 82.34 C) 82.29 D) 82.33

Rewrite with only $\sin x$ and $\cos x$.

8) $\cos 2x + \sin x$ 8) _____
 A) $1 + 3 \sin^2 x$ B) $1 - 2 \sin^2 x + \sin x$
 C) $1 + 2 \sin^2 x + \sin x$ D) $1 + 3 \sin x$

Write the expression as the sine, cosine, or tangent of an angle.

9) $\cos \frac{\pi}{2} \cos \frac{\pi}{11} + \sin \frac{\pi}{2} \sin \frac{\pi}{11}$ 9) _____
 A) $\sin \frac{13\pi}{22}$ B) $\sin \frac{9\pi}{22}$ C) $\cos \frac{13\pi}{22}$ D) $\cos \frac{9\pi}{22}$

Solve the problem.

- 10) The radius of a car wheel is 12 inches. How many revolutions per minute is the wheel making when the car is travelling at 40 mph. Round your answer to the nearest revolution. 10) _____
A) 5529 rpm B) 1261 rpm C) 560 rpm D) 9 rpm

- 11) Find $\frac{d}{dx}(3x^2 - 6)$. 11) _____
A) 6x B) 3x C) $6x^2 - 6$ D) $6x - 6$

- 12) A car wheel has a 16-inch radius. Through what angle (to the nearest tenth of a degree) does the wheel turn when the car rolls forward 5 ft? 12) _____
A) 219.9° B) 224.9° C) 214.9° D) 229.9°

Find all solutions in the interval $[0, 2\pi)$.

- 13) $\sin^2\left(\frac{x}{2}\right) = \sin^2 x$ 13) _____
A) $\frac{2\pi}{3}, \frac{4\pi}{3}$ B) $0, \frac{2\pi}{3}$ C) $0, \pi$ D) $0, \frac{2\pi}{3}, \frac{4\pi}{3}$

- 14) $\sin^2 x - \cos^2 x = 0$ 14) _____
A) $x = \frac{\pi}{4}$ B) $x = \frac{\pi}{4}, \frac{\pi}{6}$
C) $x = \frac{\pi}{4}, \frac{\pi}{3}$ D) $x = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

Assume that θ is an acute angle in a right triangle satisfying the given conditions. Evaluate the indicated trigonometric function.

- 15) $\sin \theta = \frac{3}{4}$; $\cot \theta$ 15) _____
A) $\frac{3}{\sqrt{7}}$ B) $\frac{\sqrt{7}}{4}$ C) $\frac{4}{\sqrt{7}}$ D) $\frac{\sqrt{7}}{3}$

Determine whether the given function is positive or negative for values of t in the specified quadrant.

- 16) Quadrant II, $\cot t$ 16) _____
A) Negative B) Positive

Find an exact value.

- 17) $\sin \frac{-11\pi}{12}$ 17) _____
A) $\frac{\sqrt{6} + \sqrt{2}}{4}$ B) $\frac{\sqrt{2} - \sqrt{6}}{4}$ C) $\frac{-\sqrt{6} - \sqrt{2}}{4}$ D) $\frac{\sqrt{6} - \sqrt{2}}{4}$

Solve the equation.

- 18) Solve $\cot \theta = \sqrt{3}$ for θ , where $0^\circ \leq \theta \leq 90^\circ$ 18) _____
A) 60° B) 30° C) 45° D) 75°

Convert from degrees to radians. Use the value of π found on a calculator and round answers to four decimal places, as needed.

19) 324°

A) $\frac{18\pi}{5}$

B) $\frac{8\pi}{5}$

C) $\frac{9\pi}{10}$

D) $\frac{9\pi}{5}$

19) _____

Write an equation for a sine curve that has the given amplitude and period, and which passes through the given point.

20) Amplitude 5, period $\pi/4$, point $(1/4, 0)$

A) $y = 5 \sin\left(\frac{\pi}{4}x - \frac{\pi}{4}\right)$

B) $y = 5 \sin(8x - 2)$

C) $y = 5 \sin\left(8x - \frac{\pi}{4}\right)$

D) $y = 5 \sin(4x - 1)$

20) _____

Write each expression in factored form as an algebraic expression of a single trigonometric function.

21) $\sec^4x + \sec^2x \tan^2x - 2 \tan^4x$

A) $4 \sec^2x$

B) $\tan^2x - 1$

C) $\sec^2x + 2$

D) $3 \sec^2x - 2$

21) _____

Use basic identities to simplify the expression.

22) $\frac{\cos^2\theta}{\sin^2\theta} + \csc\theta \sin\theta$

A) $\sec^2\theta$

B) $\tan^2\theta$

C) 1

D) $\csc^2\theta$

22) _____

23) $\sin^2\theta + \tan^2\theta + \cos^2\theta$

A) $\tan^2\theta$

B) $\sin\theta$

C) $\sec^2\theta$

D) $\cos^3\theta$

23) _____

Find the measures of two angles, one positive and one negative, that are coterminal with the given angle.

24) $\frac{4\pi}{5}$

A) $\frac{9\pi}{5}; -\frac{6\pi}{5}$

B) $\frac{14\pi}{5}; -\frac{6\pi}{5}$

C) $\frac{6\pi}{5}; -\frac{14\pi}{5}$

D) $\frac{9\pi}{5}; -\frac{9\pi}{5}$

24) _____

Find dy/dx .

25) $y = \frac{1}{2}x^6 - \frac{1}{3}x^3$

A) $\frac{1}{2}x^5 - \frac{1}{3}x^2$

B) $3x^7 - x^4$

C) $3x^5 - x^2$

D) $3x^6 - x^3$

25) _____

Solve for x in the given interval.

26) $\sec x = -2, \pi \leq x \leq \frac{3\pi}{2}$

A) $\frac{4\pi}{3}$

B) $\frac{5\pi}{4}$

C) $\frac{7\pi}{6}$

D) $\frac{2\pi}{3}$

26) _____

27) Find $\sec \beta$, if $\sin \beta = -\frac{3}{10}$ and $\tan \theta > 0$

27) _____

A) $\frac{\sqrt{10}}{3}$

B) $-\frac{3\sqrt{91}}{91}$

C) $-\frac{10\sqrt{91}}{91}$

D) $-\frac{\sqrt{91}}{10}$

Convert the radian measure to degree measure. Use the value of π found on a calculator and round answers to two decimal places.

28) 2.2959

28) _____

A) 132.05°

B) 130.85°

C) 131.55°

D) 132.55°

Find an algebraic expression equivalent to the given expression.

29) $\sin(\operatorname{arcsec} u)$

29) _____

A) $\sqrt{u^2 - 1}$

B) $\frac{u\sqrt{u^2 + 1}}{u^2 + 1}$

C) $\frac{\sqrt{u^2 - 1}}{u}$

D) $\sqrt{u^2 + 1}$

Find the amplitude of the function.

30) $y = -4 \sin x$

30) _____

A) $\frac{\pi}{4}$

B) 2π

C) 4

D) -4π

Find all solutions to the equation in the interval $[0, 2\pi)$.

31) $\sin 2x = -\sin x$

31) _____

A) $\frac{\pi}{8}, \frac{9\pi}{8}$

B) No solution

C) $0, \frac{2\pi}{3}, \pi, \frac{4\pi}{3}$

D) $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

Suppose that θ is in standard position and the given point is on the terminal side of θ . Give the exact value of the indicated trig function for θ .

32) $(-5, 12)$; find $\sin \theta$.

32) _____

A) $\frac{5}{13}$

B) $-\frac{5}{13}$

C) $\frac{12}{13}$

D) $-\frac{12}{13}$

Find the period of the function.

33) $y = \sin 3x$

33) _____

A) $\frac{2\pi}{3}$

B) 2π

C) 1

D) 3

Answer Key

Testname: PRECAL SPRING FINAL REVIEW AND TEST 2018 UNDERCLASSMEN

- 1) C
- 2) D
- 3) D
- 4) A
- 5) A
- 6) D
- 7) D
- 8) B
- 9) D
- 10) C
- 11) A
- 12) C
- 13) D
- 14) D
- 15) D
- 16) A
- 17) B
- 18) B
- 19) D
- 20) B
- 21) D
- 22) D
- 23) C
- 24) B
- 25) C
- 26) A
- 27) C
- 28) C
- 29) C
- 30) C
- 31) C
- 32) C
- 33) A