

Solve the problem.

- 1) What is the domain of the cosine function?
 - A) all real numbers, except odd multiples of $\frac{p}{2}$ (90°)
 - B) all real numbers
 - C) all real numbers from -1 to 1, inclusive
 - D) all real numbers, except integral multiples of p (180°)

- 2) For what numbers θ is $f(\theta) = \sec \theta$ defined?
 - A) all real numbers
 - B) all real numbers, except odd multiples of p (180°)
 - C) all real numbers, except integral multiples of p (180°)
 - D) all real numbers, except odd multiples of $\frac{p}{2}$ (90°)

- 3) For what numbers θ is $f(\theta) = \cot \theta$ defined?
 - A) all real numbers
 - B) all real numbers, except integral multiples of p (180°)
 - C) all real numbers, except odd multiples of p (180°)
 - D) all real numbers, except odd multiples of $\frac{p}{2}$ (90°)

- 4) What is the range of the cosine function?
 - A) all real numbers greater than or equal to 1 or less than or equal to -1
 - B) all real numbers from -1 to 1, inclusive
 - C) all real numbers
 - D) all real numbers greater than or equal to 0

- 5) What is the range of the tangent function?
 - A) all real numbers greater than or equal to 1 or less than or equal to -1
 - B) all real numbers, except odd multiples of $\frac{p}{2}$ (90°)
 - C) all real numbers
 - D) all real numbers from -1 to 1, inclusive

- 6) What is the range of the cosecant function?
 - A) all real numbers from -1 to 1, inclusive
 - B) all real numbers greater than or equal to 1 or less than or equal to -1
 - C) all real numbers, except integral multiples of p (180°)
 - D) all real numbers

Find the exact value of the expression.

- 7) If $\cos \theta = 0.7$, find the value of $\cos \theta + \cos (\theta + 2p) + \cos (\theta + 4p)$.
A) 2.1 B) $2.1 + 6p$ C) 4.1 D) 0.7
- 8) If $\cos \theta = 0.8$, find the value of $\cos \theta + \cos (2p - \theta) + \cos (-\theta)$.
A) $2.4 + 2p$ B) 0.8 C) -0.8 D) 3.4
- 9) If $\sin \theta = 0.6$, find the value of $\sin \theta + \sin (2p - \theta) + \sin (-\theta)$.
A) -0.6 B) 0.6 C) 1.8 D) $1.8 + 2p$
- 10) If $\cot \theta = -7.3$, find the value of $\cot \theta + \cot (\theta + p) + \cot (\theta + 2p)$.
A) -19.9 B) -21.9 C) Undefined D) $-21.9 + 3p$
- 11) If $f(\theta) = \sin \theta$ and $f(a) = \frac{1}{3}$, find the exact value of $f(-a)$.
A) $\frac{1}{3}$ B) $-\frac{2}{3}$ C) $-\frac{1}{3}$ D) $\frac{2}{3}$
- 12) If $f(\theta) = \cot \theta$ and $f(a) = 5$, find the exact value of $f(-a)$.
A) $-\frac{1}{5}$ B) $\frac{1}{5}$ C) 5 D) -5
- 13) If $f(\theta) = \sin \theta$ and $f(a) = -\frac{1}{4}$, find the exact value of $f(a) + f(a + 2p) + f(a + 4p)$.
A) $-\frac{3}{4}$ B) $\frac{5}{4}$ C) $-\frac{1}{4}$ D) $-\frac{3}{4} + 6p$
- 14) If $f(\theta) = \cot \theta$ and $f(a) = -3$, find the exact value of $f(a) + f(a + p) + f(a + 3p)$.
A) -3 B) $-9 + 4p$ C) Undefined D) -9

Solve the problem.

- 15) If $f(x) = \cos x$ and $f(a) = -\frac{1}{12}$, find the exact value of $f(a) + f(a - 2p) + f(a + 4p)$.
A) -36 B) -12 C) $-\frac{1}{4}$ D) $-\frac{1}{12}$
- 16) If $f(x) = \sin x$ and $f(a) = -\frac{1}{9}$, find the exact value of $f(a) + f(a - 4p) + f(a - 2p)$.
- 17) If $\sin \theta = -0.3$, find the value of $\sin \theta + \sin (\theta + 2p) + \sin (\theta + 4p)$.
A) -0.3 B) 1.1 C) -0.9 D) $-0.9 + 6p$
- 18) If $\cot \theta = -5.5$, find the value of $\cot \theta + \cot (\theta + p) + \cot (\theta + 2p)$.
A) -14.5 B) Undefined C) -16.5 D) $-16.5 + 3p$

19) Which of the following trigonometric values are negative?

- I. $\sin(-292^\circ)$
- II. $\tan(-193^\circ)$
- III. $\cos(-207^\circ)$
- IV. $\cot 222^\circ$

- A) I and III B) III only C) II and III D) II, III, and IV

20) Determine the sign of the trigonometric values listed below.

- (a) $\sin 250^\circ$
- (b) $\tan 330^\circ$
- (c) $\cos(-40^\circ)$

21) Which trigonometric functions are even functions? Which are odd functions? Explain why.

Find the exact value of the expression.

22) $\sin^2 25^\circ + \cos^2 25^\circ$

- A) 0.06 B) 0 C) 0.25 D) 1

23) $\sec^2 65^\circ - \tan^2 65^\circ$

- A) 0.65 B) 0.42 C) 0 D) 1

24) $\sin 55^\circ \csc 55^\circ$

- A) 0 B) 1 C) -1 D) 55

25) $\tan 55^\circ - \frac{\sin 55^\circ}{\cos 55^\circ}$

- A) 0 B) 55 C) Undefined D) 1

Find the exact value of the expression if $\theta = 30^\circ$. Do not use a calculator.

26) $g(\theta) = \cos \theta$ Find $g(2\theta)$.

- A) $\frac{\sqrt{3}}{2}$ B) $\sqrt{3}$ C) 1 D) $\frac{1}{2}$

27) $f(\theta) = \cot \theta$ Find $f(\theta)$.

- A) 1 B) $\frac{\sqrt{3}}{2}$ C) $\sqrt{3}$ D) $\frac{\sqrt{3}}{3}$

28) $f(\theta) = \sin \theta$ Find $[f(\theta)]^2$.

- A) $\frac{1}{2}$ B) 1 C) $\frac{1}{4}$ D) $\frac{3}{4}$

29) $g(\theta) = \sin \theta$ Find $10g(\theta)$.

- A) $-\frac{\sqrt{3}}{2}$ B) 5 C) $5\sqrt{3}$ D) $-\frac{1}{2}$

30) $f(\theta) = \cos \theta$ Find $11f(\theta)$.
 A) $-\frac{1}{2}$ B) $-\frac{\sqrt{3}}{2}$ C) $\frac{11}{2}$ D) $\frac{11\sqrt{3}}{2}$

Find the exact value of the expression if $\theta = 60^\circ$. Do not use a calculator.

31) $f(\theta) = \sin \theta$ Find $f(\theta)$.
 A) $\frac{\sqrt{2}}{2}$ B) $\frac{1}{2}$ C) $\frac{\sqrt{3}}{3}$ D) $\frac{\sqrt{3}}{2}$

32) $g(\theta) = \cos \theta$ Find $[g(\theta)]^2$.
 A) $\frac{1}{4}$ B) $\frac{\sqrt{3}}{2}$ C) $\frac{3}{4}$ D) $\sqrt{3}$

33) $f(\theta) = \sin \theta$ Find $10f(\theta)$.
 A) $-\frac{\sqrt{3}}{2}$ B) 5 C) $5\sqrt{3}$ D) $-\frac{1}{2}$

34) $g(\theta) = \cos \theta$ Find $5g(\theta)$.
 A) $-\frac{\sqrt{3}}{2}$ B) $\frac{5}{2}$ C) $-\frac{1}{2}$ D) $\frac{5\sqrt{3}}{2}$

Find the exact value of the expression if $\theta = 45^\circ$. Do not use a calculator.

35) $f(\theta) = \cot \theta$ Find $f(\theta)$.
 A) -1 B) 1 C) 0 D) $\sqrt{3}$

36) $g(\theta) = \sin \theta$ Find $[g(\theta)]^2$.
 A) $\frac{1}{2}$ B) $-\frac{\sqrt{2}}{2}$ C) $\sqrt{2}$ D) 2

37) $f(\theta) = \sin \theta$ Find $9f(\theta)$.
 A) $-\frac{9\sqrt{2}}{2}$ B) $-\frac{\sqrt{2}}{2}$ C) $\frac{\sqrt{2}}{2}$ D) $\frac{9\sqrt{2}}{2}$

38) $g(\theta) = \sin \theta$ Find $6g(\theta)$.
 A) $-3\sqrt{2}$ B) $-6\sqrt{2}$ C) $6\sqrt{2}$ D) $3\sqrt{2}$

Answer Key

Testname: FUNCT-

1) B

2) D

3) B

4) B

5) C

6) B

7) A

8) B

9) B

10) B

11) C

12) D

13) A

14) D

15) C

16) $-\frac{1}{3}$

17) C

18) C

19) C

20) (a) negative

(b) negative

(c) positive

21)

22) D

23) D

24) B

25) A

26) D

27) C

28) C

29) B

30) D

31) D

32) A

33) C

34) B

35) B

36) A

37) D

38) D