

1) The **sum** of solutions of the equation $2^x - (6)2^{(-x)} - 1 = 0$ is

- A) -1
- B) $\log_3(2)$
- C) $\ln 3$
- D) $\log_2(3)$
- E) $\ln \sqrt{3}$

2) If $\log 5 = a$, $\log 3 = b$, then $\log_3(45) =$

- A) $\frac{a + 2b}{a}$
- B) $\frac{2a + 2b}{b}$
- C) $\frac{a + 2b}{b}$
- D) $\frac{2a + b}{b}$
- E) $\frac{a + b}{2b}$

3) The **domain** of the function $y = 1 + \log_2 \left(\frac{2-x}{x+1} \right)$ is

- A) $(-1, 2)$
- B) $(-2, 2)$
- C) $(-\infty, -2) \cup (1, \infty)$
- D) $(-\infty, 1) \cup (2, \infty)$
- E) $(-\infty, -1) \cup (2, \infty)$

4) The **sum** of solutions of the equation $\log_2(x-1) = 2 - \log_2(x+1)$ is

- A) 0
- B) 5
- C) $\sqrt{5}$
- D) $-\sqrt{5}$
- E) -5

5) The value of $2 - \sin^2(40^\circ) - \sin^2(50^\circ)$ is

A) -3

B) 0

C) 3

D) 1

E) -1

6) The **reference** angle of the angle $\theta = 1225^\circ$ is

A) 35°

B) 65°

C) 55°

D) 45°

E) 25°

7) $\sec(480^\circ) =$

A) $-\frac{2\sqrt{3}}{3}$

B) 2

C) $\frac{2\sqrt{3}}{3}$

D) -2

E) -1

8) The **sum** of all solutions of the equation $(8)^x = (\sqrt{2})^{2x+4}$ is

A) -1

B) 3

C) -2

D) 1

E) 2

9) $(\sqrt{10})^{2 \log 2} + \log_{\frac{2}{5}} \left(\frac{4}{25} \right) =$

A) 4

B) $\frac{1}{4}$

C) 6

D) 8

E) 2

10) The graph of the function $y = \log |x - 2|$ lies **below** the x - axis over the interval

A) $(-\infty, 1) \cup (3, \infty)$

B) $(0, 1) \cup (1, 2)$

C) $(1, 2) \cup (2, 3)$

D) $(-\infty, 1) \cup (2, \infty)$

E) $(1, 3)$

11) If $f(x) = \frac{1}{x-1}$, $x \neq 1$, and $f^{-1}(x) = \frac{ax+b}{x}$, then $a+b =$

A) 1

B) -1

C) 2

D) 0

E) -2

12) If the angle of elevation from a point 18 feet from the base of a tree to the top of the tree is θ and if $\sin \theta = \frac{4}{5}$, then the height of the tree is

A) 24 feet

B) 20 feet

C) 13.5 feet

D) 21 feet

E) 27 feet

13) If an arc subtends a central angle of measure 60° in a circle with radius 5 cm, then the **arc length** is

A) $\frac{5\pi}{6}$ cm

B) $\frac{5\pi}{3}$ cm

C) $\frac{5\pi}{4}$ cm

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

E) $\frac{10\pi}{3}$ cm

14) If $f(x) = 2 + e^{(x-3)}$, then the **domain** of f^{-1} is

A) $(3, \infty)$

B) $(2, \infty)$

C) $(-\infty, 2)$

D) $[2, \infty)$

E) $(-\infty, 3)$

15) If the terminal side of an angle θ , in standard position, is defined by $x - 2y = 0$, $x > 0$, then $\sec \theta =$

A) $\frac{2\sqrt{5}}{5}$

B) $\frac{\sqrt{5}}{2}$

C) $\frac{1}{2}$

D) $\sqrt{5}$

E) $\frac{5}{2}$

16) The wheels of a car have radius 9 inches and are rotating at 300 revolutions per minute. The **speed** of the car in inches per second is

A) 150π

B) 45π

C) 90π

D) 900π

E) 180π

17) Which **one** of the following statements is **FALSE** about the function $f(x) = 2 + \sqrt{x}$?

- A) The domain of f is $[0, \infty)$.
- B) The rang of f is $[2, \infty)$.
- C) $f^{-1}(1)$ is undefined.
- D) $(f^{-1} \circ f)(-4) = -4$.
- E) The function f is one-to-one.

18) If $\sec \theta = -5$ and $\sin \theta > 0$, then $\tan \theta - \sin \theta =$

- A) $\frac{8\sqrt{6}}{5}$
- B) $12\sqrt{6}$
- C) $-\frac{12\sqrt{6}}{5}$
- D) $-2\sqrt{6}$
- E) $-\frac{8\sqrt{6}}{5}$

19) The **range** of the function $f(x) = 2 - \left(\frac{1}{3}\right)^{x-1}$ is

- A) $(2, \infty)$
- B) $(-3, \infty)$
- C) $(-\infty, 2)$
- D) $(-\infty, 0)$
- E) $(-\infty, 3)$

20) Which **one** of the following angles is **coterminal** with the angle 777° ?

- A) -663°
- B) 50°
- C) -50°
- D) -203°
- E) 47°

Answer Key
Testname: 001

- 1) D
- 2) C
- 3) A
- 4) C
- 5) D
- 6) A
- 7) D
- 8) D
- 9) A
- 10) C
- 11) C
- 12) A
- 13) B
- 14) B
- 15) B
- 16) C
- 17) D
- 18) C
- 19) C
- 20) A