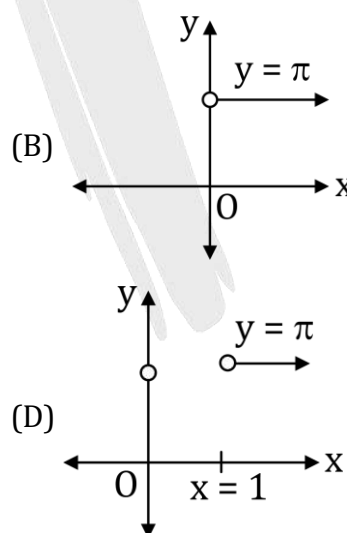
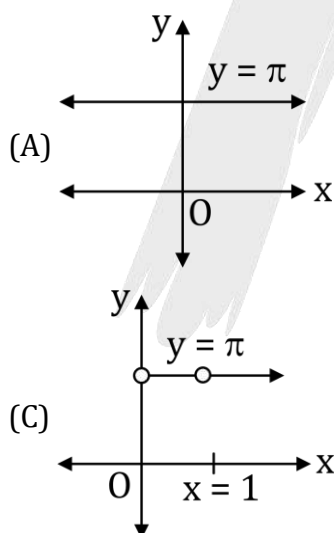


QUESTIONS OF DOMAIN

1. The domain of the function $f(x) = \frac{1}{\sqrt{{}^{10}C_{x-1} - 3 \times {}^{10}C_x}}$ is
 (A) $\{9, 10, 11\}$ (B) $\{9, 10, 12\}$
 (C) all natural numbers (D) $\{9, 10\}$
2. The domain of the function $f(x) = \frac{\sin^{-1}(3-x)}{\ln(|x|-2)}$ is
 (A) $[2, 4]$ (B) $(2, 3) \cup (3, 4]$ (C) $[2, \infty)$ (D) $(-\infty, -3) \cup [2, \infty)$
3. The domain of $f(x) = \frac{\log_2(x+3)}{x^2+3x+2}$ is
 (A) $\mathbb{R} - \{-1, -2\}$ (B) $(-2, \infty)$
 (C) $\mathbb{R} - \{-1, -2, -3\}$ (D) $(-3, \infty) - \{-1, -2\}$
4. The domain of the function $f(x) = \sqrt{x^2 - [x]^2}$, where $[x]$ is the greatest integer less than or equal to x , is
 (A) \mathbb{R} (B) $[0, +\infty)$ (C) $(-\infty, 0]$ (D) none of these
5. The domain of the function $f(x) = \log_{3+x}(x^2 - 1)$ is
 (A) $(-3, -1) \cup (1, \infty)$ (B) $[-3, -1) \cup [1, \infty)$
 (C) $(-3, -2) \cup (-2, -1) \cup (1, \infty)$ (D) $[-3, -2) \cup (-2, -1) \cup [1, \infty)$
6. The domain of the function $f(x) = \left[\log_{10} \left(\frac{5x-x^2}{4} \right) \right]^{1/2}$ is
 (A) $-\infty < x < \infty$ (B) $1 \leq x \leq 4$ (C) $4 \leq x \leq 16$ (D) $-1 \leq x \leq 1$
7. The domain of $f(x) = \log |\log x|$ is
 (A) $(0, \infty)$ (B) $(1, \infty)$ (C) $(0, 1) \cup (1, \infty)$ (D) $(-\infty, 1)$
8. If $x^3 f(x) = \sqrt{1 + \cos 2x} + |f(x)|$, $\frac{-3\pi}{4} < x < \frac{-\pi}{2}$ and $f(x) = \frac{\alpha \cos x}{1+x^3}$, then the value of α is
 (A) 2 (B) $-\sqrt{2}$ (C) $\sqrt{2}$ (D) 1
9. The domain of definition of the function $f(x)$ given by the equation $2^x + 2^y = 2$ is
 (A) $0 < x \leq 1$ (B) $0 \leq x \leq 1$ (C) $-\infty < x \leq 0$ (D) $-\infty < x < 1$
10. The domain of $f(x) = \cos^{-1} \left(\frac{2-|x|}{4} \right) + [\log(3-x)]^{-1}$ is
 (A) $[-2, 6]$ (B) $[-6, 2) \cup (2, 3)$ (C) $[-6, 2]$ (D) $[-2, 2] \cup (2, 3)$
11. The domain of the function $f(x) = \sqrt{\log \left(\frac{1}{|\sin x|} \right)}$
 (A) $\mathbb{R} - \{-\pi, \pi\}$ (B) $\mathbb{R} - \{n\pi \mid n \in \mathbb{Z}\}$ (C) $\mathbb{R} - \{2n\pi \mid n \in \mathbb{Z}\}$ (D) $(-\infty, \infty)$
12. The domain of the following function is $f(x) = \log_2 \left(-\log_{1/2} \left(1 + \frac{1}{x^{1/4}} \right) - 1 \right)$
 (A) $(0, 1)$ (B) $(0, 1]$ (C) $[1, \infty)$ (D) $(1, \infty)$

13. The number of real solutions of the $\log_{0.5} |x| = 2|x|$ is
 (A) 1 (B) 2 (C) 0 (D) none of these
14. The domain of the function $f(x) = \sqrt{\ln_{(|x|-1)}(x^2 + 4x + 4)}$ is
 (A) $[-3, -1] \cup [1, 2]$ (B) $(-2, -1) \cup [2, \infty)$
 (C) $(-\infty, -3] \cup (-2, -1) \cup (2, \infty)$ (D) none of these
15. The domain of $f(x) = \ln(ax^3 + (a+b)x^2 + (b+c)x + c)$, where $a > 0, b^2 - 4ac = 0$, is (where $[\cdot]$ represents greatest integer function)
 (A) $(-1, \infty) \sim \left\{-\frac{b}{2a}\right\}$ (B) $(1, \infty) \sim \left\{-\frac{b}{2a}\right\}$
 (C) $(-1, 1) \sim \left\{-\frac{b}{2a}\right\}$ (D) none of these
16. The domain of the function $f(x) = \frac{1}{\sqrt{4x - |x^2 - 10x + 9|}}$ is
 (A) $(7 - \sqrt{40}, 7 + \sqrt{40})$ (B) $(0, 7 + \sqrt{40})$ (C) $(7 - \sqrt{40}, \infty)$ (D) none of these
17. The exhaustive domain of the following function is $f(x) = \sqrt{x^{12} - x^9 + x^4 - x + 1}$
 (A) $[0, 1]$ (B) $[1, \infty)$ (C) $(-\infty, 1]$ (D) \mathbb{R}
18. The domain of the function $f(x) = \sqrt{\sin x + \cos x} + \sqrt{7x - x^2 - 6}$ is
 (A) $[1, 6]$ (B) $\left[1, \frac{3\pi}{4}\right] \cup \left[\frac{7\pi}{4}, 6\right]$ (C) $[1, \pi] \cup \left[\frac{7\pi}{4}, 6\right]$ (D) none of these
19. Which one of following best represent the graph of $y = x^{\log_x \pi}$?



ANSWER KEY

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

