



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, ∞)	(D) (- ∞ , -3) \cup [2, ∞)
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3. The domain of $f(x) = \frac{\log_2(x+3)}{x^2+3x+2}$ is

(A) $\mathbb{R} - \{-1, -2\}$	(B) (-2, ∞)
(C) $\mathbb{R} - \{-1, -2, -3\}$	(D) (-3, ∞) - {-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, ∞)	(C) (- ∞ , 0]	(D) none of these
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5. The domain of the function $f(x) = \log_{3+x}(x^2 - 1)$ is

(A) (-3, -1) \cup (1, ∞)	(B) [-3, -1) \cup [1, ∞)
(C) (-3, -2) \cup (-2, -1) \cup (1, ∞)	(D) [-3, -2) \cup (-2, -1) \cup [1, ∞)

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) $-1 \leq x \leq 1$
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7. The domain of $f(x) = \log |\log x|$ is

(A) (0, ∞)	(B) (1, ∞)	(C) (0, 1) \cup (1, ∞)	(D) (- ∞ , 1)
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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
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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) $-\infty < x < 1$
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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)
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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) (- ∞ , ∞)
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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, ∞)	(D) (1, ∞)
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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 $y = x^{\log_x \pi}$?
 (A)
 (B)
 (C)
 (D)



ANSWER KEY

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| 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) | | |

