

DPP-5

- Range of the function $f(x) = \frac{x^2 + x + 2}{x^2 + x + 1}; x \in R$ is
 (A) $(1, \infty)$ (B) $(1, 11/7]$ (C) $(1, 7/3]$ (D) $(1, 7/5]$.
- Range of $f(x) = [x] - x$ is
 (A) $[0, 1]$ (B) $(-1, 0]$ (C) R (D) $(-1, 1)$
- The range of $f(x) = \cos(x/3)$ is
 (A) $(-1/3, 1/3)$ (B) $[-1, 1]$ (C) $(1/3, -1/3)$ (D) $(-3, 3)$.
- The range of the function $f(x) = \frac{x+2}{|x+2|}$ is
 (A) $\{0, 1\}$ (B) $\{-1, 1\}$ (C) R (D) $R - \{-2\}$
- If $f: R \rightarrow R$, then the range of the function $f(x) = \frac{x^2}{x^2 + 1}$ is
 (A) R^- (B) R^+ (C) R (D) $[0, 1)$.
- The range of $f(x) = \cos 2x - \sin 2x$ contains the set
 (A) $[2, 4]$ (B) $[-1, 1]$ (C) $[-2, 2]$ (D) $[-4, 4]$
- Range of the function $\frac{1}{2 - \sin 3x}$ is
 (A) $[1, 3]$ (B) $\left[\frac{1}{3}, 1\right]$ (C) $(1, 3)$ (D) $\left(\frac{1}{3}, 1\right)$.
- Range of $f(x) = \frac{x^2 + 34x - 71}{x^2 + 2x - 7}$ is
 (A) $[5, 9]$ (B) $(-\infty, 5] \cup [9, \infty)$ (C) $(5, 9)$ (D) None of these
- The function $f: R \rightarrow R$ is defined by $f(x) = \cos^2 x + \sin^4 x$ for $x \in R$, then $f(R) =$
 (A) $\left[\frac{3}{4}, 1\right]$ (B) $\left[\frac{3}{4}, 1\right)$ (C) $\left[\frac{3}{4}, 1\right]$ (D) $\left(\frac{3}{4}, 1\right)$.
- If x is real, then value of the expression $\frac{x^2 + 14x + 9}{x^2 + 2x + 3}$ lies between
 (A) 5 and 4 (B) 5 and -4 (C) -5 and 4 (D) None of these
- For $\theta > \frac{\pi}{3}$, the value of $f(\theta) = \sec^2 \theta + \cos^2 \theta$ always lies in the interval
 (A) $(0, 2)$ (B) $[0, 1]$ (C) $(1, 2)$ (D) $[2, \infty)$.
- Let $f(x) = (1 + b^2)x^2 + 2bx + 1$ and $m(b)$ the minimum value of $f(x)$ for a given b . As b varies, the range of $m(b)$ is
 (A) $[0, 1]$ (B) $\left(0, \frac{1}{2}\right]$ (C) $\left[\frac{1}{2}, 1\right]$ (D) $(0, 1)$.
- The range of the function $f(x) = {}^{7-x}P_{x-3}$ is
 (A) $\{1, 2, 3, 4, 5\}$ (B) $\{1, 2, 3, 4, 5, 6\}$ (C) $\{1, 2, 3, 4\}$ (D) $\{1, 2, 3\}$

14. Let $2 \sin^2 x + 3 \sin x - 2 > 0$ and $x^2 - x - 2 < 0$ (x is measured in radians). Then x lies in the interval
- (A) $\left(\frac{\pi}{6}, \frac{5\pi}{6}\right)$ (B) $\left(-1, \frac{5\pi}{6}\right)$ (C) $(-1, 2)$ (D) $\left(\frac{\pi}{6}, 2\right)$.
15. The range of the function $f(x) = e^x + e^{-x}$ is
- (A) $x \geq 1$ (B) $x \leq 1$ (C) $x \geq 2$ (D) $x \leq 2$

1.	2.	3.	4.	5.
C	B	B	B	D
6.	7.	8.	9.	10.
B	B	B	C	C
11.	12.	13.	14.	15.
D	D	D	D	C