SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :1**

Topic :-LIMITS AND DERIVATIVES

1. $\lim_{\theta\to\frac{\pi}{2}} \frac{\frac{\pi}{2}-\theta}{\cot\theta}$ is equal to
   a) 0 b) -1 c) 1 d) ∞
2. $\lim_{x\to 0} \frac{a^x-b^x}{e^x-1}$ is equal to
   a) $\log_e\left(\frac{a}{b}\right)$ b) $\log_e\left(\frac{b}{a}\right)$ c) $\log_e(ab)$ d) $\log_e(a+b)$
3. $\lim_{x\to-\infty} \frac{2x-1}{\sqrt{x^2+2x+1}}$ is equal to
   a) 2 b) -2 c) 1 d) -1
4. $\lim_{x\to 2} = \frac{\sqrt{1+\sqrt{2+x}}-\sqrt{3}}{x-2}$ is equal to
   a) $\frac{1}{8\sqrt{3}}$ b) $\frac{1}{\sqrt{3}}$ c) $8\sqrt{3}$ d) $\sqrt{3}$
5. $\lim_{x\to 0}\left\{\frac{1}{x\sqrt[3]{8+x}}-\frac{1}{2x}\right\}$ is equal to
   a) $\frac{1}{12}$ b) $\frac{-4}{3}$ c) $\frac{-16}{3}$ d) $\frac{-1}{48}$
6. The value of $\lim_{x\to 0} \frac{a^x-b^x}{x}$, is
   a) $\log\left(\frac{a}{b}\right)$ b) $\log\left(\frac{b}{a}\right)$ c) $\log(ab)$ d) $-\log(ab)$
7. $\lim_{x\to 1} \frac{\sum_{r=1}^{n} x^r-n}{x-1}$ is equal to
   a) $\frac{n}{x}$ b) $\frac{n(n+1)}{2}$ c) 1 d) 0
8. The value of $\lim_{x\to 1}(\log_5 5x)^{\log_x 5}$ is
   a) 1 b) e c) -1 d) None of these
9. $\lim_{x\to 0} \frac{e^{\tan x}-e^x}{\tan x-x} =$
   a) 1 b) e c) $e-1$ d) 0
10. The value of $\lim_{x\to\infty}\left(\frac{x^2-2x+1}{x^2-4x+2}\right)^x$, is

a) e^2 b) e^{-2} c) e^6 d) None of these

11. If $\lim_{x\to 0}\frac{\log(x+a)-\log a}{x}+k\lim_{x\to e}\frac{\log x-1}{x-e}=1$, then the value of k is

a) $1-\frac{1}{a}$ b) $e(1-a)$ c) $e\left(1-\frac{1}{a}\right)$ d) $e(1+a)$

12. The value of $\lim_{x\to\infty}\frac{\sin x}{x}$, is

a) 1 b) 0 c) -1 d) None of these

13. $\lim_{x\to 0} x\log\sin x$ is equal to

a) 0 b) ∞

c) 1 d) Cannot be determined

14. $\lim_{x\to 0}\frac{d}{dx}\int\frac{1-\cos x}{x^2}dx$ is equal to

a) 1 b) 0 c) 1/2 d) None of these

15. $\lim_{x\to 0}\frac{1}{x}\left\{\int_y^a e^{\sin^2 t}dt-\int_{x+y}^a e^{\sin^2 t}\,dt\right\}$ is equal to (where a is a constant)

a) $e^{\sin^2 y}$ b) $\sin 2y\, e^{\sin^2 y}$ c) 0 d) None of these

16. Let $f''(x)$ be continuous at $x=0$and $f''(0)=4$. Then $\lim_{x\to 0}\frac{2f(x)-3f(2x)+f(4x)}{x^2}$ is equal to

a) 11 b) 2 c) 12 d) None of these

17. If $\lim_{x\to 0}\frac{[(a-n)nx-\tan x]\sin nx}{x^2}=0$, where n is non-zero real number, then a is equal to

a) 0 b) $\frac{n+1}{n}$ c) n d) $n+\frac{1}{n}$

18. The values of a and b such that $\lim_{x\to 0}\frac{x(1+a\cos x)-b\sin x}{x^3}=0$, are

a) $\frac{5}{2},\frac{3}{2}$ b) $\frac{5}{2},-\frac{3}{2}$ c) $-\frac{5}{2},-\frac{3}{2}$ d) None of these

19. The value of $\lim_{x\to\infty}\left(\frac{x^2-2x+1}{x^2-4x+2}\right)^x$ is

a) e^2 b) e^{-2} c) e^6 d) None of these

20. The value of $\lim_{x\to 0}\frac{(1-\cos 2x)}{x^2}$ is

a) Does not exist b) Infinite c) 0 d) 2

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :2**

Topic :-LIMITS AND DERIVATIVES

1. The value of $\lim_{x\to 0}\frac{1+\sin x-\cos x+\log(1-x)}{x^3}$, is
   a) $1/2$ b) $-1/2$ c) 0 d) 1

2. $\lim_{x\to 0}\left\{\frac{1+\tan x}{1+\sin x}\right\}^{\operatorname{cosec} x}$ is equal to
   a) $\frac{1}{e}$ b) 1 c) e d) e^2

3. $\lim_{x\to\frac{\pi}{6}}\frac{2\sin^2 x+\sin x-1}{2\sin^2 x-3\sin x+1}$ is equal to
   a) 3 b) -3 c) 6 d) 0

4. The value of $\lim_{x\to 0}\left(\frac{1+5x^2}{1+3x^2}\right)^{1/x^2}$ is
   a) e^2 b) e c) $\frac{1}{e}$ d) $\frac{1}{e^2}$

5. If $f(x)=\begin{cases}x, x<0\\ 1, x=0\\ x^2, x>0\end{cases}$, then $\lim_{x\to 0} f(x)$ is
   a) 0 b) 1 c) 2 d) Does not exist

6. If x is a real number in [0, 1], then the value of $\lim_{m\to\infty}\lim_{n\to\infty}[1+\cos^{2m}(n!\ \pi x)]$ is given by
   a) 2 or 1 according as x is rational or irrational
   b) 1 or 2 according as x is rational or irrational
   c) 1 for all x
   d) 2 or 1 for all x

7. $\lim_{x\to 1}(1+\cos\pi x)\cot^2\pi$ is equal to
   a) 1 b) -1 c) $1/2$ d) $-1/2$

8. If $\lim_{x\to 0}\frac{(e^{kx}-1)\sin kx}{x^2}=4$, then k is equal to
   a) 2 b) -2 c) ± 2 d) ± 4

9. $\lim_{x\to 0}\frac{\log(1+x^3)}{\sin^3 x}$ is equal to
   a) 0 b) 1 c) 3 d) None of these

10. If $l_1 = \lim_{x\to 2^+}(x+[x])$, $l_2 = \lim_{x\to 2^-}(2x-[x])$ and $l_3 = \lim_{x\to \pi/2}\frac{\cos x}{(x-\pi/2)}$, then

a) $l_1 < l_2 < l_3$ b) $l_2 < l_3 < l_1$ c) $l_3 < l_2 < l_1$ d) $l_1 < l_3 < l_2$

11. If $f(x) = \begin{cases} \frac{\sin(1+[x])}{[x]}, & for\ [x] \neq 0 \\ 0, & for\ [x] = 0 \end{cases}$

Where $[x]$ denotes the greatest integer not exceeding x, then $\lim_{x\to 0^-} f(x)$ is equal to

a) -1 b) 0 c) 1 d) 2

12. $\lim_{x\to 0}\frac{(1-cos\ 2x)\sin 5x}{x^2 \sin 3x}$ equals

a) 10/3 b) 3/10 c) 6/5 d) 5/6

13. If $f(x) = \frac{\sin(e^{x-2}-1)}{\log(x-1)}$, then $\lim_{x\to 2} f(x)$ is given by

a) -2 b) -1 c) 0 d) 1

14. If $S_n = \sum_{k=1}^{n} a_k$ and $\lim_{n\to\infty} a_n = a$, then $\lim_{n\to\infty}\frac{S_{n+1}-S_n}{\sqrt{\sum_{k=1}^{n} k}}$ is equal to

a) 0 b) a c) $\sqrt{2}\,a$ d) $2a$

15. $\lim_{h\to 0}\frac{\sin\sqrt{x+h}-\sin\sqrt{x}}{h}$ is equal to

a) $\cos\sqrt{x}$ b) $1/(2\sin\sqrt{x})$ c) $(\cos\sqrt{x})/2\sqrt{x}$ d) $\sin\sqrt{x}$

16. The value of $\lim_{x\to\frac{\pi}{2}}(\sin x)^{\tan x}$ is

a) 1 b) 0 c) e d) None of these

17. The value of

$\lim_{n\to\infty}\cos\left(\frac{x}{2}\right)\cos\left(\frac{x}{4}\right)\cos\left(\frac{x}{8}\right)\ldots\cos\left(\frac{x}{2^n}\right)$ is

a) $\frac{x}{\sin x}$ b) $\frac{x}{\cos x}$ c) $\frac{(\sin x)}{x}$ d) $\frac{(\cos x)}{x}$

18. The value of the limit $\lim_{x\to 1}\frac{\sin(e^{x-1}-1)}{\log x}$ is

a) 0 b) e c) $\frac{1}{e}$ d) 1

19. If $l = \lim_{x\to -2}\frac{\tan \pi x}{x+2} + \lim_{x\to\infty}\left(1+\frac{1}{x^2}\right)^x$, then which one of the following is not correct?

a) $l > 3$

b) $l > 4$

c) $l < 4$

d) l is a transcendental number

20. $\lim_{x\to 1}\frac{\sqrt{1-\cos 2(x-1)}}{x-1}$

a) Exists and is equals $\sqrt{2}$

b) Exists and is equals $-\sqrt{2}$

c) Does not exist because $x - 1 \to 0$

d) Does not exist because left hand limit is not equal to right hand limit

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :3**

Topic :-LIMITS AND DERIVATIVES

1. If $f'(2) = 2, f''(2) = 1$, then $\lim_{x\to 2} \frac{2x^2 - 4f'(x)}{x-2}$, is
   a) 4 b) 0 c) 2 d) ∞

2. $\lim_{x\to \pi/4} \frac{\int_2^{\sec^2 x} f(t)dt}{x^2 - \pi^2/16}$ equals
   a) $\frac{8}{\pi} f(2)$ b) $\frac{2}{\pi} f(2)$ c) $\frac{2}{\pi} f\left(\frac{1}{2}\right)$ d) $4f(2)$

3. If $f(a) = 2,\ f'(a) = 1, g(a) = 3, g'(a) = -1$, then $\lim_{x\to a} \frac{f(a)g(x) - f(x)g(a)}{x-a}$ is equal to
   a) 6 b) 1 c) -1 d) -5

4. If $f(x) = \left(\frac{x^2+5x+3}{x^2+x+2}\right)^x$ then $\lim_{x\to\infty} f(x)$ is equal to
   a) e^4 b) e^3 c) e^2 d) 24

5. $\lim_{x\to 0} \frac{\sin^{-1} x - x}{x^3 \cos x}$ is equal to
   a) 1/2 b) 1/3 c) 1/6 d) 1/12

6. For $x > 0$, $\lim_{x\to 0} \left((\sin x)^{1/x} + \left(\frac{1}{x}\right)^{\sin x}\right)$ is
   a) 0 b) -1 c) 1 d) 2

7. The value of $\lim_{x\to\infty} \left(\frac{3x-4}{3x+2}\right)^{\frac{x+1}{3}}$ is equal to
   a) $e^{-1/3}$ b) $e^{-2/3}$ c) e^{-1} d) e^{-2}

8. $\lim_{x\to 0} \frac{1}{x} \sin^{-1}\left(\frac{2x}{1+x^2}\right)$ is equal to
   a) -2 b) 0 c) 2 d) ∞

9. $\lim_{x\to 0} \frac{2\sin^2 3x}{x^2}$ is equal to
   a) 0 b) 1 c) 18 d) 36

10. $\lim_{x\to 0} \frac{a^x + a^{-x} - 2}{x^2}$ is equal to
    a) $(\log a)^2$ b) $\log a$ c) 0 d) None of these

11. Let $f(x) = \begin{cases} 1, \text{when } x \text{ is rational} \\ 0, \text{when } x \text{ irrational} \end{cases}$, then $\lim_{x\to 0} f(x)$ is

a) 0 b) 1 c) $\frac{1}{2}$ d) None of these

12. For $x \in R$ $\lim_{x\to\infty} \left(\frac{x-3}{x+2}\right)^x$ is equal to

a) e b) e^{-1} c) e^{-5} d) e^5

13. The value of $\lim_{x\to\infty} x\cos\left(\frac{\pi}{4x}\right)\sin\left(\frac{\pi}{4x}\right)$, is

a) $\frac{\pi}{2}$ b) $\frac{\pi}{4}$ c) 1 d) None of these

14. The derivative of function $f(x)$ is$\tan^4 x$. If $f(x) = 0$, then $\lim_{x\to 0} \frac{f(x)}{x}$is equal to

a) 1 b) 0 c) -1 d) None of these

15. Let $f(x) = \begin{cases} (1/2)\{g(x) + (x)\}\sin(x), x \geq 1 \\ \sin x/x\,, \quad x < 1 \end{cases}$

Where $g(x) = \begin{cases} 1, & \text{if } x > 0 \\ -1, & \text{if } x < 0 \\ 0, & \text{if } x = 0 \end{cases}$ Then, $\lim_{x\to 1} f(x)$ is equal to

a) 0 b) 2 c) sin 1 d) None of these

16. If $\lim_{x\to\infty} \left[\frac{x^3+1}{x^2+1} - (ax+b)\right] = 2$, then

a) $a = 1$and$b = 1$ b) $a = 1$ and $b = -1$ c) $a = 1$ and $b = -2$ d) $a = 1$ and $b = 2$

17. If $f: R \to R$ is defined by

$f(x) = \begin{cases} \frac{x-2}{x^2-3x+2}, \text{if } x \in R - \{1,2\} \\ 2, \text{ if } \quad x = 1 \\ 1, \quad \text{if } \quad x = 2 \end{cases}$

Then $\lim_{x\to 2} \frac{f(x)-f(2)}{x-2}$ is equal to

a) 0 b) -1 c) 1 d) $-\frac{1}{2}$

18. Let $f: R \to R$ be a differentiable function such that $f(3) = 3, f'(3) = \frac{1}{2}$, Then, the value of $\lim_{x\to 3} \frac{\int_3^{f(x)} 2t^3 dt}{x-3}$ is

a) 25 b) 26 c) 27 d) None of these

19. Let $f(a) = g(a) = k$ and their nth derivatives $f^n(a), g^n(a)$ exist and are not equal for some$n$. Further if $\lim_{x\to a} \frac{f(a)g(x)-f(a)-g(a)f(x)+g(a)}{g(x)-f(x)} = 4$, then the value of k is equal to

a) 4 b) 2 c) 1 d) 0

20. The value of $\lim_{x\to 0} \frac{\sin x}{\sqrt{x^2}}$, is

a) 1 b) -1 c) 0 d) None of these

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :4**

Topic :-LIMITS AND DERIVATIVES

1. The value of $\lim_{h\to 0}\frac{(a+h)^2\sin(a+h)-a^2\sin a}{h}$, is
   a) $2a\sin a+a^2\cos a$ b) $2a\sin a-a^2\cos a$ c) $2a\cos a+a^2\sin a$ d) None of these

2. If $f(x)$ is differentiable function and $f''(0)=a$, then $\lim_{x\to 0}\frac{2f(x)-3f(2x)+f(4x)}{x^2}$ is equal to
   a) $3a$ b) $2a$ c) $5a$ d) $4a$

3. The value of $\lim_{x\to 0}\frac{e^x+\log(1+x)-(1-x)^{-2}}{x^2}$ is equal to
   a) 0 b) -3 c) -1 d) Infinity

4. If for some real number k
$\lim_{x\to 0} kx\,\text{cosec}(x)=\lim_{x\to 0} x\,\text{cosec}\,(kx)$, then the possible values of k are
   a) 1, -1 b) 0, 1 c) 1, 2 d) $0,\pi$

5. The value of $\lim_{x\to 0}\frac{|x|}{x}$ is
   a) 1 b) -1 c) 0 d) None of these

6. $\lim_{x\to 0} x^2\sin\frac{\pi}{x}$, us
   a) 1 b) 0 c) Non-existent d) ∞

7. The value of $\lim_{x\to\infty}\left(\frac{x^2+bx+4}{x^2+ax+5}\right)$ is
   a) $\frac{b}{a}$ b) 0 c) 1 d) $\frac{4}{5}$

8. If $f(x)$ is the integral function of the function $\frac{2\sin x-\sin 2x}{x^3}$, $x\neq 0$, then $\lim_{\to} f'(x)$ is equal to
   a) 0 b) 1 c) -1 d) None of these

9. The value of $\lim_{x\to\infty}\left(\frac{3x-4}{3x+4}\right)^{\left(\frac{x+1}{3}\right)}$, is
   a) $e^{-2/3}$ b) $e^{-1/3}$ c) e^{-2} d) e^{-1}

10. $\lim_{x\to 0}\frac{(1+x)^8-1}{(1+x)^2-1}$ is equal to

a) 8 b) 6 c) 4 d) 2

11. The value of $\lim_{x\to\pi/4}\frac{2\sqrt{2}-(\cos x+\sin x)^3}{1-\sin 2x}$, is

a) $\frac{3}{\sqrt{2}}$ b) $\frac{\sqrt{2}}{3}$ c) $\frac{1}{\sqrt{2}}$ d) $\sqrt{2}$

12. $\lim_{x\to-\infty}\left(3x+\sqrt{9x^2-x}\right)$equals

a) 1/3 b) 1/6 c) $-1/6$ d) $-1/3$

13. $\lim_{x\to0}\frac{e^{5x}-e^{4x}}{x}$ is equal to

a) 1 b) 2 c) 4 d) 5

14. Let $L=\lim_{x\to0}\frac{a-\sqrt{a^2-x^2}-x^2/4}{x^4}, a>0$. If L is finite, then

a) $a=2, L=\frac{1}{64}$ b) $a=1, L=\frac{1}{64}$ c) $a=3, L=\frac{1}{32}$ d) $a=1, L=\frac{1}{32}$

15. $\lim_{x\to0} x\log_e(\sin x)$ is equal to

a) -1 b) $\log_e 1$ c) 1 d) None of these

16. The value of $\lim_{x\to0^+} x^m\,(\log x)^n, m, n. N$ is

a) 0 b) m/n c) mn d) n/m

17. The value of $\lim_{x\to\infty}\frac{\sqrt{1+x^4}-(1+x^2)}{x^2}$ is equal to

a) 0 b) -1 c) 2 d) None of these

18. $\lim_{x\to0}(\text{cosec } x)^{1/\log x}$ is equal to

a) 0 b) 1 c) $1/e$ d) None of these

19. If $f(1)=2$and $f'(1)=1$, then value of $\lim_{x\to1}\frac{2x-f(x)}{x-1}$ is

a) -1 b) 0 c) 1 d) 2

20. The value of $\lim_{x\to0}\frac{1-\cos(1-\cos x)}{x^4}$ is

a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{1}{6}$ d) $\frac{1}{8}$

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :5**

Topic :-LIMITS AND DERIVATIVES

1. The value of $\lim_{x\to\infty} x^{3/2}\left(\sqrt{x^3+1}-\sqrt{x^3-1}\right)$, is
   a) 1 b) -1 c) 0 d) None of these

2. If $\lim_{x\to a}\frac{a^x-x^a}{x^x-a^a}=-1$, then a equal to
   a) 1 b) 0 c) e d) $(1/e)$

3. If $\lim_{x\to 0}\left\{\frac{x^3+1}{x^2+1}-(ax+b)\right\}=2$, then
   a) $a=1, b=1$ b) $a=1, b=2$ c) $a=1, b=-2$ d) None of these

4. $\lim_{x\to 0}\frac{e^{x^2}-\cos x}{x^2}$ is equal to
   a) 0 b) $\frac{1}{2}$ c) 1 d) $\frac{3}{2}$

5. $\lim_{n\to\infty}\left(\frac{1^2}{1-n^3}+\frac{2^2}{1-n^3}+\ldots+\frac{n^2}{1-n^3}\right)$ is equal to
   a) $\frac{1}{3}$ b) $-\frac{1}{3}$ c) $\frac{1}{6}$ d) $-\frac{1}{6}$

6. $\lim_{x\to\frac{\pi}{6}}\frac{\sin 2x}{\sin x}$ is equal to
   a) $\sqrt{3}$ b) $\frac{1}{\sqrt{3}}$ c) 2 d) $\frac{1}{2}$

7. The value of $\lim_{x\to 0}\frac{1-\cos(1-\cos x))}{x^4}$, is
   a) $\frac{1}{8}$ b) $\frac{1}{2}$ c) $\frac{1}{4}$ d) None of these

8. Let α and β be the roots of the equation $ax^2+bx+c=0$, where $1<\alpha<\beta$. If $\lim_{x\to m}\frac{|ax^2+bx+c|}{ax^2+bx+c}=1$, then
   a) $a<0$ and $\alpha<m<\beta$ b) $a>0$ and $m>1$ c) $a>0$ and $m<1$ d) All the above

9. $\lim_{x\to 1}\frac{x^m-1}{x^n-1}$ is equal to
   a) $\frac{n}{m}$ b) $\frac{m}{n}$ c) $\frac{2m}{n}$ d) $\frac{2n}{m}$

10. Let α and β be the distinct roots of $ax^2 + bx + c = 0$, then $\lim_{x\to\alpha} \frac{1-\cos(ax^2+bx+c)}{(x-\alpha)^2}$ is equal to

a) $\frac{1}{2}(\alpha-\beta)^2$ b) $-\frac{a^2}{2}(\alpha-\beta)^2$ c) 0 d) $\frac{a^2}{2}(\alpha-\beta)^2$

11. $\lim_{x\to 0}\left[\frac{2^x-1}{\sqrt{1+x}-1}\right]$ is equal to

a) $\log_e 2$ b) $\log_e \sqrt{2}$ c) $\log_e 4$ d) 2

12. $\lim_{x\to 0}\left(\frac{x}{\sqrt{1+x}-\sqrt{1-x}}\right)$is equal to

a) 0 b) 1 c) 2 d) -1

13. If $\lim_{x\to 0}\frac{\log(3+x)-\log(3-x)}{x} = k$, the value of k is

a) 0 b) -1/3 c) 2/3 d) -2/3

14. If a, b, c, d are positive, then $\lim_{x\to\infty}\left(1+\frac{1}{a+bx}\right)^{c+dx} =$

a) $e^{d/b}$ b) $e^{c/a}$ c) $e^{(c+d)/a+b}$ d) e

15. The value of $\lim_{x\to 0}\left(\frac{\int_0^{x^2}\sec^2 t\, dt}{x\sin x}\right)$ is

a) 3 b) 2 c) 1 d) 0

16. $\lim_{x\to\infty}\frac{\sin x}{x}$ is equal to

a) ∞ b) 1 c) 0 d) Does not exist

17. $\lim_{x\to 0}\frac{x\cos x-\log(1+x)}{x^2}$equals

a) 1/2 b) 0 c) 1 d) $-1/2$

18. Given that $\lim_{n\to\infty}\sum_{r=1}^{n}\frac{\log(r+n)-\log n}{n} = 2\left(\log 2-\frac{1}{2}\right)$, $\lim_{n\to\infty}\frac{1}{n^k}[(n+1)^k(n+2)^k\ldots(n+n)^k]^{1/n}$, is

a) $\frac{4k}{e}$ b) $\sqrt[k]{\frac{4}{e}}$ c) $\left(\frac{4}{e}\right)^k$ d) $\left(\frac{e}{4}\right)^k$

19. $\lim_{x\to 0}\frac{\sin|x|}{x}$ is equal to

a) 1 b) 0 c) positive infinity d) does not exist

20. The value of $\lim_{x\to\infty}\left\{\frac{x^2\sin\left(\frac{1}{x}\right)-x}{1-|x|}\right\}$, is

a) 0 b) 1 c) -1 d) None of these

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :6**

Topic :-LIMITS AND DERIVATIVES

1. If $l_1 = \lim_{x\to -2}(x+|x|)$, $l_2 = \lim_{x\to -2}(2x+|x|)$ and $l_3 = \lim_{x\to \pi/2}\frac{\cos x}{x-\pi/2}$, then
   a) $l_1 < l_2 < l_3$ b) $l_2 < l_3 < l_1$ c) $l_3 < l_2 < l_1$ d) $l_1 < l_3 < l_2$

2. $\lim_{x\to\infty}\left(\frac{x+2}{x+1}\right)^{x+3}$ is equal to
   a) 1 b) e c) e^2 d) e^3

3. $\lim_{x\to 0}\frac{1}{x^{12}}\left\{1-\cos\frac{x^2}{2}-\cos\frac{x^4}{4}+\cos\frac{x^2}{2}\cos\frac{x^4}{4}\right\}$ is equal to
   a) $\frac{1}{32}$ b) $\frac{1}{256}$ c) $\frac{1}{16}$ d) $-\frac{1}{256}$

4. If $f(x) = \sqrt{\frac{x-\sin x}{x+\cos^2 x}}$, then $\lim_{x\to\infty} f(x)$ is
   a) 0 b) ∞ c) 1 d) None of these

5. The value of $\lim_{x\to 1}(2-x)^{\tan\frac{\pi x}{2}}$ is equal to
   a) $e^{-2/\pi}$ b) $e^{1/\pi}$ c) $e^{2/\pi}$ d) $e^{-1/\pi}$

6. $\lim_{n\to\infty} r^n = 0$, then r is equal to
   a) $\frac{4}{5}$ b) $\frac{5}{4}$ c) 2 d) 1

7. The value of $\lim_{x\to 0}\frac{5^x-5^{-x}}{2x}$ is
   a) $\log 5$ b) 0 c) 1 d) $2\log 5$

8. $\lim_{x\to 0}\frac{\sqrt{1-\cos 2x}}{\sqrt{2}x}$ is
   a) λ b) -1 c) 0 d) Does not exist

9. The value of $\lim_{x\to\infty} a^x \sin\left(\frac{b}{a^x}\right)$ is $(a>1)$
   a) $b\log a$ b) $a\log b$ c) b d) None of these

10. $\lim_{x\to\infty}\left(\frac{x^3}{3x^2-4}-\frac{x^2}{3x+2}\right)$ is equal to
    a) $-\frac{1}{4}$ b) $-\frac{1}{2}$ c) 0 d) $\frac{2}{9}$

11. $\lim_{x\to 0}\frac{e^{x^2}-\cos x}{x^2}$ is equal to

a) $3/2$ b) $1/2$ c) $2/3$ d) None of these

12. The value of $\lim_{x\to\infty}\left\{\frac{a_1^{1/x}+a_2^{1/x}+\cdots+a_n^{1/x}}{n}\right\}^1$, is

a) $a_1+a_2+\cdots+a_n$ b) $e^{a_1+a_2+\cdots+a_n}$ c) $\frac{a_1+a_2+\cdots+a_n}{n}$ d) $a_1a_2\ldots\ldots a_n$

13. The value of $\lim_{x\to 0}\frac{\sin^2 x+\cos x-1}{x^2}$ is

a) 1 b) $\frac{1}{2}$ c) $-\frac{1}{2}$ d) 0

14. $\lim_{x\to 0}\frac{\sin 4x}{1-\sqrt{1-x}}$, is

a) 4 b) 8 c) 10 d) 2

15. $\lim_{x\to 1}\frac{x^8-2x+1}{x^4-2x+1}$equals

a) 3 b) 0 c) -3 d) 1

16. The value of $\lim_{x\to\infty}\sqrt{a^2x^2+ax+1}-\sqrt{a^2x^2+1}$ is

a) $\frac{1}{2}$ b) 1 c) 2 d) None of these

17. $\lim_{x\to 0}(-1)^{[x]}$, where [.] denotes the greatest integer function is equal to

a) 0 b) 1 c) -1 d) Does not exist

18. $\lim_{x\to 0}\frac{(1-e^x)\sin x}{x^2+x^3}$ is equal to

a) -1 b) 0 c) 1 d) 2

19. The value of $\lim_{x\to\infty}\left(\frac{x+3}{x+1}\right)^{x+2}$ is

a) 0 b) 1 c) e^2 d) e^4

20. If α is a repeated root of $ax^2+bx+c=0$, then $\lim_{x\to\alpha}\frac{\sin(ax^2+bx+c)}{(x-\alpha)^2}$ is

a) 0 b) a c) b d) c

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :7**

Topic :-LIMITS AND DERIVATIVES

1. The value of $\lim_{x\to 0}\frac{e^x-(1+x)}{x^2}$, is
   a) 0 b) $1/2$ c) 2 d) e

2. $\lim_{x\to\infty}\frac{(2x+1)^{40}(4x-1)^5}{(2x+3)^{45}}$ is equal to
   a) 16 b) 24 c) 32 d) 8

3. If $f: R \to R$ is defined by $f(x) = [x-3] + [x-4]$ for $x \in R$, then $\lim_{x\to 3^-} f(x)$ is equal to
   a) -2 b) -1 c) 0 d) 1

4. The value of $\lim_{x\to 2^-}\{x + (x-[x]^2\}$, is
   a) 0 b) 1 c) 2 d) 3

5. The value of $\lim_{x\to\infty}\left(\frac{x^2+2x+3}{2x^2+x+5}\right)^{\frac{3x-2}{3x+2}}$, is
   a) $e^{1/2}$ b) $e^{3/2}$ c) e^3 d) None of these

6. $\lim_{x\to 0}\left[\frac{e^x-e^{\sin x}}{x-\sin x}\right]$ is equal to
   a) -1 b) 0 c) 1 d) None of these

7. The value of $\lim_{x\to 1}(\log_2 2x)^{\log_x 5}$ is
   a) $5/2$ b) $e^{\log_2 5}$ c) $\log 5 / \log 2$ d) $e^{\log_5 2}$

8. Let $f: R \to R$ be appositive increasing function with $\lim_{x\to\infty}\frac{f(3x)}{f(x)} = 1$. Then, $\lim_{x\to\infty}\frac{f(2x)}{f(x)}$ is equal to
   a) 1 b) $\frac{2}{3}$ c) $\frac{3}{2}$ d) 3

9. If $f(x) = \begin{cases} x^2-3, & 2<x<3 \\ 2x+5, & 3<x<4 \end{cases}$, the equation whose roots are $\lim_{x\to 3^-} f(x)$ and $\lim_{x\to 3^+} f(x)$, is
   a) $x^2-7x+3=0$ b) $x^2-20x+66=0$ c) $x^2-17x+66=0$ d) $x^2-18x+60=0$

10. If $f(x) = \begin{cases} x\sin\left(\frac{1}{x}\right), x \neq 0 \\ 0, x = 0 \end{cases}$ Then, $\lim_{x\to 0} f(x)$
    a) Is equal to 1 b) Is equal to -1 c) Is equal to 0 d) Does not exist

11. The value of $\lim_{x\to-\pi}\frac{|x+\pi|}{\sin x}$

a) Is equal to -1 b) Is equal to 1 c) Is equal to π d) Does not exist

12. Let $f(x)=\frac{1}{\sqrt{18-x^2}}$. The value of $\lim_{x\to3}\frac{f(x)-f(3)}{x-3}$, is

a) 0 b) $-\frac{1}{9}$ c) $-\frac{1}{3}$ d) $\frac{1}{9}$

13. The value of $\lim_{x\to\infty}\frac{5^{x+1}-7^{x+1}}{5^x-7^x}$, is

a) 5 b) -5 c) 7 d) -7

14. If $A_i=\frac{x-a_i}{|x-a_i|}, i=1,2,\dots,n$ andif $a_1<a_2<a_3<\cdots<a_n$. Then, $\lim_{x\to a_m}(A_1A_2\dots A_n), 1\le m\le n$

a) Is equal to $(-1)^m$ b) Is equal to $(-1)^{m+1}$ c) Is equal to $(-1)^{m-1}$ d) Does not exist

15. $\lim_{x\to-1}\frac{(1+x)(1-x^2)(1+x^3)(1-x^4)\dots(1-x^{4n})}{[(1+x)(1-x^2)(1+x^3)(1-x^4)\dots(1-x^{2n})]^2}$ is equal to

a) ${}^{4n}C_{2n}$ b) ${}^{2n}C_n$ c) 2. ${}^{4n}C_{2n}$ d) 2. ${}^{4n}C_n$

16. The value of $\lim_{x\to\infty}\frac{\log x}{x^n}, n>0$ is

a) 0 b) 1 c) $\frac{1}{n}$ d) $\frac{1}{n!}$

17. If f be a function such that $f(9)=9$and $f'(9)=3$, then $\lim_{x\to9}\frac{\sqrt{f(x)}-3}{\sqrt{x}-3}$ is equal to

a) 9 b) 3 c) 1 d) None of these

18. Let $f(x)=\lim_{x\to\infty}\frac{x^{2n}-1}{x^{2n}+1}$, then

a) $f(x)=\begin{cases}1,|x|>1\\-1,|x|<1\end{cases}$

b) $f(x)=\begin{cases}1,|x|<1\\-1,|x|>1\end{cases}$

c) $f(x)$is not defined for any value of x

d) $f(x)=1$for$|x|=1$

19. $\lim_{x\to1}\frac{e^{-x}-e^{-1}}{x-1}$ is equal to

a) $\frac{1}{e}$ b) $-\frac{1}{e}$ c) 1 d) None of these

20. The value of $\lim_{n\to\infty}\frac{x^n}{x^n+1}$, where $x<-1$ is

a) $\frac{1}{2}$ b) $-\frac{1}{2}$ c) 1 d) None of these

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :8**

Topic :-LIMITS AND DERIVATIVES

1. If $a = \min\{x^2 + 4x + 5 : x \in R\}$ and $b = \lim_{\theta \to 0} \frac{1-\cos 2\theta}{\theta^2}$, then the value of $\sum_{r=0}^{n} {}^nC_r\, a^r b^{n-r}$, is
   a) $2n$ b) 3^n c) 2^{n+1} d) 2^{n-1}

2. If $0 < x < y$, then $\lim_{n \to \infty} (y^n + x^n)^{1/n}$ is equal to
   a) e b) x c) y d) None of these

3. $\lim_{x \to 1} (\log ex)^{1/\log x}$ is equal to
   a) e^{-1} b) e c) e^2 d) 0

4. If $\lim_{x \to \infty} \left\{ax - \frac{x^2+1}{x+1}\right\} = b$, a finite number, then
   a) $a = 1, b = 1$ b) $a = 0, b = 1$ c) $a = -1, b = 1$ d) $b = -1, a = -1$

5. The value of $\lim_{x-0} \frac{1}{x^3} \int_0^x \frac{t \log(1+t)}{t^4+4} dt$ is
   a) 0 b) $\frac{1}{12}$ c) $\frac{1}{24}$ d) $\frac{1}{64}$

6. For the function
$f(x) = \lim_{n \to \infty} \frac{\log(2+x) + x^{2n} \sin x}{1+x^{2n}}$ Which of the flowing is true?
   a) $\lim_{x \to 1^-} f(x)$ does not exist
   b) $\lim_{x \to 1^+} f(x)$ does not exist
   c) Both limits exist and $\lim_{x \to 1^-} f(x) = \lim_{x \to 1^+} f(x)$
   d) Both limits exist and $\lim_{x \to 1^-} f(x) \neq \lim_{x \to 1^+} f(x)$

7. $\lim_{x \to \infty} \frac{\int_0^{2x} x\, e^{x^2}\, dx}{e^{4x^2}}$ equals
   a) 0 b) ∞ c) 2 d) $1/2$

8. The value of
$\lim_{x \to \pi/2} \tan^2 x \left(\sqrt{2 \sin^2 x + 3 \sin x + 4} - \sqrt{\sin^2 x + 6 \sin x + 2}\right)$ is equal to
   a) $\frac{1}{10}$ b) $\frac{1}{11}$ c) $\frac{1}{12}$ d) $\frac{1}{8}$

9. $\lim_{x\to\infty}\left(\frac{x+2}{x+1}\right)^{x+3}$ is

a) 1 b) e c) e^2 d) e^3

10. If $f(x)=\cot^{-1}[(3x-x^3)/(1-3x^2)]$ and $g(x)=\cos^{-1}[(1-x^2)/(1+x^2)]$, then $\lim_{x\to a}\frac{f(x)-f(a)}{g(x)-g(a)}\left(0<a<\frac{1}{2}\right)$ is

a) $-\frac{3}{2}$ b) $\frac{1}{2}$ c) $\frac{3}{2}$ d) None of these

11. Let $f(x)=\begin{cases} x^2,\ x\in Z \\ \frac{k(x^2-4)}{2-x}, x\notin Z \end{cases}$ Then, $\lim_{x\to 2} f(x)$

a) Exists only when $k=1$

b) Exists for every real k

c) Exists for every real k except $k=1$

d) Does not exist

12. The value of $\lim_{x\to 0}\frac{1-\cos^3 x}{x\sin x\cos x}$, is

a) 2/5 b) 3/5 c) 3/2 d) 3/4

13. $\lim_{x\to\infty}\sqrt{\frac{x+\sin x}{x-\cos x}}=$

a) 0 b) 1 c) -1 d) None of these

14. It is given that $f'(a)$ exists, then $\lim_{x\to a}\frac{xf(a)-af(x)}{x-a}$ is equal to

a) $f(a)-a\,f'(a)$ b) $f'(a)$ c) $-f'(a)$ d) $f(a)+a\,f'(a)$

15. $\lim_{h\to 0}\frac{\sin(a+3h)-3\sin(a+2h)+3\sin(a+h)-\sin a}{h^3}$ is equal to

a) $\sin a$ b) $-\sin a$ c) $\cos a$ d) $-\cos a$

16. $\lim_{x\to 0}\left\{\frac{1^x+2^x+3^x+\cdots+n^x}{n}\right\}^{1/x}$ is equal to

a) $(n!)^n$ b) $(n!)^{1/n}$ c) $n!$ d) $\ln n!$

17. The value of $\lim_{x\to 0}\frac{\int_0^{x^2}\cos t^2\,dt}{x\sin x}$ is

a) 3/2 b) 1 c) -1 d) None of these

18. If $f(x)=\frac{2}{x-3}$, $g(x)=\frac{x-3}{x+4}$ and $h(x)=-\frac{2(2x+1)}{x^2+x-12}$, then $\lim_{x\to 3}\{f(x)+g(x)+h(x)\}$, is

a) -2 b) -1 c) $-2/7$ d) 0

19. $\lim_{x\to 0}\left[\frac{8\sin x+x\cos x}{3\tan x+x^2}\right]$ is equal to

a) 3 b) 2 c) -1 d) 4

20. If $\lim_{x\to 0}\frac{\log(3+x)-\log(3-x)}{x}=k$, the value of k is

a) $-2/3$ b) 0 c) $-1/3$ d) $2/3$

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :9**

Topic :-LIMITS AND DERIVATIVES

1. The value of $\lim_{x\to\infty}\left(\frac{x^2+6}{x^2-6}\right)^x$ is given by
   a) 0 b) 1 c) -1 d) None of these

2. $\lim_{x\to\infty}\left(\frac{x^2+5x+3}{x^2+x+2}\right)^x$ is equal to
   a) e^4 b) e^2 c) e^3 d) e

3. If $G(x)=\sqrt{25-x^2}$, then $\lim_{x\to1}\frac{G(x)-G(1)}{x-1}$ has the value
   a) $\frac{1}{\sqrt{24}}$ b) $\frac{1}{5}$ c) $-\sqrt{24}$ d) $-1/5$

4. $\lim_{x\to1}\cos^{-1}\left(\frac{1-\sqrt{x}}{1-x}\right)$ is equal to
   a) $\frac{\pi}{3}$ b) $\frac{\pi}{6}$ c) $\frac{\pi}{2}$ d) $\frac{\pi}{4}$

5. $\lim_{x\to1}\frac{\sin(e^x-1)}{\log x}$ is equal to
   a) 1 b) 0 c) e d) e^{-1}

6. $\lim_{x\to\frac{\pi}{6}}\left[\frac{3\sin x-\sqrt{3}\cos x}{6x-\pi}\right]$
   a) $\sqrt{3}$ b) $\frac{1}{\sqrt{3}}$ c) $-\frac{1}{\sqrt{3}}$ d) $-\frac{1}{3}$

7. Let $f: R\to R$ be a differentiable function such that $f(2)=2$. Then, the value of $\lim_{x\to2}\int_2^{f(x)}\frac{4t^3}{x-2}dt$, is
   a) $6f'(2)$ b) $12f'(2)$ c) $32f'(2)$ d) None of these

8. $\lim_{x\to\frac{\pi}{4}}\frac{\int_2^{\sec^2 x}f(t)dt}{x^2-\frac{\pi^2}{16}}$ equals
   a) $\frac{8}{\pi}f(2)$ b) $\frac{2}{\pi}f(2)$ c) $\frac{2}{\pi}f\left(\frac{1}{2}\right)$ d) $4f(2)$

9. If $f(x)=\sqrt{\frac{x-\sin x}{x+\cos^2 x}}$, then $\lim_{x\to\infty}f(x)$ is
   a) 0 b) ∞ c) 1 d) None of these

10. Let $f(x)$ be twice differentiable function such that $f''(0) = 2$. Then, $\lim_{x\to 0} \frac{2f(x)-3f(2x)+f(4x)}{x^2}$ is

a) 6 b) 3 c) 12 d) None of these

11. The value of $\lim_{x\to \pi/2} \frac{\cot x - \cos x}{(\pi-2x)^3}$

a) 1 b) $\frac{1}{16}$ c) 16 d) None of these

12. The value of $\lim_{x\to\infty} \left(\frac{x+3}{x-1}\right)^{x+3}$, is

a) e b) e^2 c) e^4 d) $1/e$

13. The value of $\lim_{x\to 7} \frac{2-\sqrt{x-3}}{x^2-49}$ is

a) 2/9 b) -2/49 c) 1/64 d) -1/56

14. $\lim_{x\to\infty} \frac{\sqrt{x^2+1}-\sqrt[3]{x^3+1}}{\sqrt[4]{x^4+1}-\sqrt[5]{x^4+1}}$ equals

a) 1 b) 0 c) -1 d) None of these

15. Let $f: R \to R$ be a differentiable function having $f(2) = 6, f'(2) = \left(\frac{1}{48}\right)$. Then, $\lim_{x\to 2} \frac{\int_6^{f(x)} 4\,t^3\,dt}{x-2}$ is equals

a) 18 b) 12 c) 36 d) 24

16. If $g(x)$ is a polynomial satisfying $g(x)g(y) = g(x) + g(y) + g(xy) - 2$ for all real x and $y$and $g(2) = 5$, then $\lim_{x\to 3} g(x)$ is

a) 9 b) 10 c) 25 d) 20

17. $\lim_{x\to \pi/4} \frac{1-\cot^3 x}{2-\cot x-\cot^3 x}$, is

a) $\frac{11}{4}$ b) $\frac{3}{4}$ c) $\frac{1}{2}$ d) None of these

18. If $[x]$ denotes the greatest integer less than or equal to x, then the value of $\lim_{x\to 1}\{1 - x + [x-1] + [1-x]\}$ is

a) 0 b) 1 c) -1 d) None of these

19. If $\lim_{x\to 1} \frac{ax^2+bx+c}{(x-1)^2} = 2$, then (a, b, c) is

a) (2, -4, 2) b) (2, 4, 2) c) (2, 4, -2) d) (2, -4, -2)

20. $\lim_{x\to 1} \frac{2x^2+x-3}{3x^3-3x^2+2x-2}$ is equal to

a) 1 b) 2 c) -1 d) -2

SESSION : 2025-26

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :10**

Topic :-LIMITS AND DERIVATIVES

1. $\lim_{x\to\infty}(\sqrt{x+\sqrt{x+\sqrt{x}}}-\sqrt{x})$ is equal to
   a) ½ b) 0 c) 1 d) None of these

2. The value of $\lim_{x\to\infty}\left(\frac{x+6}{x+1}\right)^{x+4}$, is
   a) e b) e^2 c) e^4 d) e^5

3. Let α and β be the roots of $a\,x^2+b\,x+c=0$, then $\lim_{x\to a}\frac{1-\cos(a\,x^2+bx+c)}{(x-\alpha)^2}$ is equal to
   a) 0 b) $\frac{1}{2}(\alpha-\beta)^2$ c) $\frac{\alpha^2}{2}(\alpha-\beta)^2$ d) $-\frac{\alpha^2}{2}(\alpha-\beta)^2$

4. $\lim_{x\to0}(1-ax)^{1/x}$ is equal to
   a) e^{-a} b) e c) e^a d) 1

5. If $\lim_{n\to\infty}\frac{1-(10)^n}{1+(10)^{n+1}}=\frac{-\alpha}{10}$, then the value of α is
   a) 0 b) -1 c) 1 d) 2

6. The value of $\lim_{n\to\infty}\frac{\sqrt{n^2+1}+\sqrt{n}}{\sqrt[4]{n^3+n}-\sqrt[4]{n}}$, is
   a) 0 b) 1 c) -1 d) None of these

7. The value of $\lim_{x\to2}\frac{5}{\sqrt{2}-\sqrt{x}}$ is
   a) $10\sqrt{2}$ b) $+\infty$ c) $-\infty$ d) Does not exist

8. $\lim_{n\to\infty}\frac{2^{-n}(n^2+5n+6)}{(n+4)(n+5)}$ is equal to
   a) 0 b) 1 c) ∞ d) $-\infty$

9. If $f(x)=\begin{cases}x\sin\frac{1}{x} & x\neq0\\ 0 & x=0\end{cases}$, then $\lim_{x\to0}f(x)$ is equal to
   a) 1 b) 0 c) -1 d) None of these

10. $\lim_{x\to a}\frac{\log(x-a)}{\log(e^x-e^a)}$ is equal to
    a) 0 b) 1 c) a d) Does not exist

11. The value of $\lim_{x\to\infty}\left(\frac{x-1}{x+1}\right)^x$, is

a) 0 b) e^{-1} c) e^{-2} d) e^{-3}

12. $\lim_{x\to 0}\left[\frac{3^x+3^{-x}-2}{x^2}\right]$ is equal to

a) $2\log 3$ b) $-(\log 3)^2$ c) $-2\log 3$ d) $(\log 3)^2$

13. $\lim_{x\to 0}\left(\frac{e^x+e^{-x}-2}{x^2}\right)^{1/x^2}$ is equal to

a) $e^{1/2}$ b) $e^{1/4}$ c) $e^{1/b}$ d) $e^{1/12}$

14. The value of $\lim_{x\to\infty}\left(\frac{\pi}{2}-\tan^{-1}x\right)^{1/x}$ is

a) 0 b) 1 c) -1 d) e

15. The value of $\lim_{x\to 1}\left\{\frac{x^3+2x^2+x+1}{x^2+2x+3}\right\}^{\frac{1-\cos(x-1)}{(x-1)^2}}$, is

a) e b) $e^{1/2}$ c) 1 d) None of these

16. $\lim_{x\to -3}\frac{3x^2+ax+a-7}{x^2+2x-3}$ exists, then a is equal to

a) 10 b) 15 c) -15 d) -10

17. $\lim_{x\to\infty}\left(1-\frac{4}{x-1}\right)^{3x-1}$ is equal to

a) e^{12} b) e^{-12} c) e^4 d) e^3

18. $\lim_{n\to\infty}\left\{\frac{1}{1-n^2}+\frac{2}{1-n^2}+\frac{3}{1-n^2}+\cdots+\frac{n}{1-n^2}\right\}$ is equal to

a) 0 b) $-1/2$ c) $1/2$ d) 1

19. $\lim_{x\to 0}\frac{x\tan 2x-2x\tan x}{(1-\cos 2x)^2}$, is

a) 2 b) -2 c) $1/2$ d) $-1/2$

20. $\lim_{n\to\infty}\frac{3.2^{n+1}-4.5^{n+1}}{5.2^n+7.5^n}$ is equal to

a) $\frac{3}{5}$ b) $-\frac{4}{7}$ c) $-\frac{20}{7}$ d) 0