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LISTA DE EXERCÍCIOS DE EQUAÇÕES DIFERENCIAIS I - SÉRIES

Decida se as séries dadas são convergentes ou divergentes. Se possível determine a sua soma.

1. $\sum_{n=1}^{\infty} \frac{3}{4^{n-1}}$
2. $\sum_{n=1}^{\infty} \left(\frac{-1}{\sqrt{5}}\right)^{n-1}$
3. $\sum_{n=1}^{\infty} \frac{37}{100^n}$
4. $\sum_{n=1}^{\infty} 2^{-n} 3^{n-1}$
5. $\sum_{n=1}^{\infty} \frac{3n}{5n-1}$
6. $\sum_{n=1}^{\infty} \frac{1}{n^2+3}$
7. $\sum_{n=1}^{\infty} \frac{1}{\sqrt[n]{e}}$
8. $\sum_{n=1}^{\infty} \frac{n}{\ln(n+1)}$
9. $\sum_{n=1}^{\infty} \left[\left(\frac{1}{4}\right)^n + \left(\frac{3}{4}\right)^n \right]$
10. $\sum_{n=1}^{\infty} (2^{-n} - 2^{-3n})$
11. $\sum_{n=1}^{\infty} \left[\frac{1}{8^n} + \frac{1}{n(n+1)} \right]$
12. $\sum_{n=1}^{\infty} \frac{\text{sen } n}{4^n}$
13. $\sum_{n=1}^{\infty} \frac{1}{(3+2n)^2}$
14. $\sum_{n=1}^{\infty} \frac{1}{4n+7}$
15. $\sum_{n=1}^{\infty} n^2 e^{n^3}$
16. $\sum_{n=2}^{\infty} \frac{1}{n\sqrt{n^2-1}}$
17. $\sum_{n=1}^{\infty} \frac{1}{n^4+n^2+1}$
18. $\sum_{n=1}^{\infty} \frac{1}{4n3^n}$
19. $\sum_{n=1}^{\infty} \frac{1}{n^n}$
- 20.
21. $\sum_{n=1}^{\infty} \frac{3n+1}{2^n}$
22. $\sum_{n=1}^{\infty} \frac{5^n}{n3^{n+1}}$
23. $\sum_{n=1}^{\infty} \frac{100^n}{n!}$
24. $\sum_{n=1}^{\infty} \frac{n+3}{n^2+2n+5}$

25.
$$\sum_{n=1}^{\infty} \frac{n!}{e^n}$$

26.
$$\sum_{n=1}^{\infty} \frac{1}{n^n}$$

27.
$$\sum_{n=1}^{\infty} \frac{2^n}{n^2}$$

28.
$$\sum_{n=1}^{\infty} \frac{n}{3^n}$$

29.
$$\sum_{n=1}^{\infty} \left(\frac{n}{2n+1} \right)^n$$

30.
$$\sum_{n=1}^{\infty} (-1)^{n+1} \frac{1}{\ln(n+1)}$$

31.
$$\sum_{n=1}^{\infty} (-1)^n \frac{5}{n^3+1}$$

32.
$$\sum_{n=1}^{\infty} \frac{(-10)^n}{n!}$$

33.
$$\sum_{n=1}^{\infty} (-1)^n \frac{n^2+3}{(2n-5)^2}$$

34.
$$\sum_{n=1}^{\infty} (-1)^n n \operatorname{sen} \frac{1}{n}$$

35.
$$\sum_{n=1}^{\infty} (-1)^n \frac{\cos(\pi n)}{n}$$

36.
$$\sum_{n=1}^{\infty} \frac{1}{\sqrt{n}}$$

37.
$$\sum_{n=0}^{\infty} \frac{n^3 - 3n^2 + 5}{3n^2 + 1}$$

38.
$$\sum_{n=2}^{\infty} \frac{1}{\ln n}$$

39.
$$\sum_{n=3}^{\infty} \frac{\sqrt{n}+1}{n^2-4}$$

40.
$$\sum_{n=0}^{\infty} \frac{\operatorname{sen} \sqrt{n^2+1}}{n^2+1}$$

41.
$$\sum_{n=2}^{\infty} \frac{1}{e^n} \operatorname{sen} \left(\frac{1}{n} \right)$$

42.
$$\sum_{n=6}^{\infty} \frac{(-1)^n \sqrt{2^n}}{n!}$$