

Compiti estivi classe IV sez A

Si determini, delle funzioni sotto riportate:

Dominio, eventuali simmetrie, intersezioni con gli assi, studio del segno.

45 a) $y = \frac{x^2 - 5x + 4}{x - 5}$. b) $y = \frac{2x^3 - 3x^2 + 1}{2x^2}$.

46 a) $y = \frac{2x^2 - x - 2}{(x - 1)^2}$. b) $y = \frac{x^3}{(x^2 - 1)^2}$.

47 a) $y = \frac{x}{(x - 1)^3}$. b) $y = \frac{1}{x^4 - 3x^2 - 4}$.

48 a) $y = \frac{1 - x^2}{1 + x^2}$. b) $y = \frac{x^2}{x^2 + 4x + 4}$.

76 a) $y = (x - 2)e^{-2x}$. b) $y = \frac{e^{x+1}}{x + 2}$.

77 a) $y = (x^2 + x)e^x$. b) $y = \frac{e^{2x}}{e^x + 1}$.

78 a) $y = e^{\frac{1}{x-2}}$. b) $y = \frac{e^x}{1 + e^{2x}}$.

79 a) $y = e^{\frac{x}{x-1}}$. b) $y = \frac{x+1}{x+5} e^x$.

80 a) $y = \frac{e^x}{2-x}$. b) $y = \frac{x^2 + 2x}{e^x}$.

93 a) $y = \frac{\log x + 1}{\log x - 2}$. b) $y = \frac{\log x}{1 - \log^2 x}$.

94 a) $y = \log(9 - x^2)$. b) $y = \frac{x \log x}{(1 + \log x)^2}$.

95 a) $y = \frac{x}{1 + \log x}$. b) $y = \log \frac{x^2 + 2x}{x^2 - 1}$.

96 a) $y = x \log x$. b) $y = \frac{x^2}{\log x}$.

7 a) $y = \arctg e^x$. b) $y = x^2 - 3\sqrt[3]{x^2}$.

8 a) $y = \frac{x^2 - 2x - 1}{x^2 + 1}$. b) $y = \frac{\sin x + \cos x}{\sin 2x}$.

9 a) $y = \sqrt{\frac{x+1}{4-x^2}}$. b) $y = x\sqrt[3]{\log x}$.

10 a) $y = \frac{1 - \sin x}{\cos x}$. b) $y = |x| - e^x$.

11 a) $y = \log \frac{x^2}{x-1}$. b) $y = (x-1)^2 e^{-x}$.

12 a) $y = x \log|x|$. b) $y = \arctg \frac{1-x}{1+x}$.

13 a) $y = \sqrt{x} \log x$. b) $y = x e^{\frac{1}{x}}$.

61 $y = \frac{x^2 - 6x - 18}{\sqrt{2x-3}}$.

62 $y = \frac{x+2}{\sqrt{x^2-x}}$.

64 a) $y = \sqrt[3]{x^2-x}$. b) $y = \frac{\sqrt{x+1}}{\sqrt{x-1}}$.

65 a) $y = \sqrt{x-x^2}$. b) $y = x\sqrt{1-x^2}$.

66 a) $y = \frac{x}{\sqrt{1-x^2}}$. b) $y = \frac{2x^2 + 11x}{\sqrt{2x+1}}$.

107 a) $y = \frac{1 - \sin x}{\cos x}$. b) $y = 2 \sin^3 x - 3 \sin x$.

108 a) $y = 2 \sin x - \operatorname{tg} x$. b) $y = \frac{1 + \sin x}{\sin x + \cos x}$.

109 a) $y = \sin x \cos x + \cos^2 x$. b) $y = \frac{\sin x}{\cos x + \sqrt{2}}$.

110 a) $y = \frac{\sin x}{1 + \sin x}$. b) $y = \frac{1 - \cos x}{1 - \sin x}$.

111 a) $y = \frac{\cos x - \sin x}{\cos^2 x}$. b) $y = \frac{\sin x}{\cos^2 x - 2}$.

112 a) $y = \frac{1 - \sin x}{2 + \sin x}$. b) $y = \frac{\sin 2x}{1 + 4 \sin x}$.

16 a) $y = \sqrt{x} \cdot e^{-2x}$. b) $y = \sqrt{x} e^{-\frac{1}{x}}$.

17 a) $y = \frac{1}{x} + \log x$. b) $y = \log \frac{x^3}{x^2 - 1}$.

18 a) $y = \frac{\sin x}{1 + 2 \sin^2 x}$. b) $y = \log \left(1 - \frac{1}{|x|} \right)$.

19 a) $y = x^2(x-1)^3$. b) $y = \frac{x^3}{1+x^2}$.

20 a) $y = \frac{x^3}{(x+1)^4}$. b) $y = \sin x \cos x + \cos^2 x$.

21 a) $y = \sqrt{x} e^{-x^2}$. b) $y = \frac{1 + \log|x|}{2 - \log|x|}$.

22 a) $y = \sqrt[3]{x} e^{-\frac{1}{x}}$. b) $y = x^2 - 4x + \log x$.