Studio di funzione

studiare le seguenti funzioni razionali

1	$y = x^3 + 2x^2 - 3$	2	$y = \frac{x-3}{x^2-4}$	3	$y = \frac{x^2}{x-2}$
4	$y = \frac{x^2-3}{x^2-1}$	5	$y = x(x-2)^2$	6	$y = \frac{2}{2+x^2}$
7	$y = \frac{x}{x^2-3}$	8	$y = \frac{x^3}{x^2-4}$	9	$y = \frac{2x^2}{3+x^2}$
10	$y = \frac{x}{x^2-9}$	11	$y = \frac{3x}{x^2+x-2}$	12	$y = x^3 - 2x^2 + x + 2$
13	$y = 2x^3 - 2x^2 + x$	14	$y = \frac{2x^2+1}{x}$	15	$y = \frac{(x-2)(x+1)}{x(x+3)}$
16	$y = \frac{x^3-2x}{x^2-6}$	17	$y = -x^3 + 2x^2 + 3x - 2$	18	$y = \frac{3-x}{x^2-7x+10}$
19	$y = -2x^4 - x^3 + 2x^2 - 2$	20	$y = \frac{x^2-2}{x^2+2}$	21	$y = \frac{x^3-8}{2x^3+3}$
22	$y = \frac{x+3}{x^2-1}$	23	$y = x^3 - x + 1$	24	$y = \frac{x^2-5x+6}{x^2-2}$
25	$y = \frac{x^2+1}{x-5}$	26	$y = \frac{x^2+3x-2}{2x^2-x-5}$	27	$y = \frac{x^2+4}{(x-1)^2}$

studiare le seguenti funzioni irrazionali

28	$y = -2x - \sqrt{4-x^2}$	29	$y = \sqrt{3x-x^2}$	30	$y = \sqrt{3x-5}$
31	$y = \sqrt[3]{x^3-2x}$	32	$y = x\sqrt{3-x}$	33	$y = \frac{\sqrt{x^2-1}}{x^2+3}$
34	$y = \frac{x+3}{\sqrt{x^2-1}}$	35	$y = x - 1 - \sqrt{x^2-3x+1}$	36	$y = \frac{x-1}{\sqrt{x^2-2x+5}}$
37	$y = \sqrt{x^2-2x}$	38	$y = \sqrt[3]{x^2-4} - 2$	39	$y = \frac{x-2}{\sqrt{x^2-2}}$
40	$y = 3x + 2\sqrt{x^2-4}$	41	$y = \frac{3}{\sqrt{2x^2-1}}$	42	$y = x\sqrt{1-x^2}$
43	$y = \sqrt{\frac{3+x^2}{x^2-4}}$	44	$y = x^2\sqrt{3-x}$	45	$y = 3 - \sqrt[3]{1-2x}$
46	$y = x - 3\sqrt{x+4}$	47	$y = \frac{\sqrt{2-x^2}-1}{\sqrt{2-x^2}}$	48	$y = \sqrt{\frac{x+1}{x^2-1}}$
49	$y = \frac{x+2}{\sqrt{x+3}}$	50	$y = \sqrt{x(x^2-1)}$	51	$y = 3x - \sqrt{x^2-1}$

Studio di funzione

52	$y = \frac{\sqrt{x+3}}{x}$	53	$y = \sqrt[3]{x+4} + \frac{2}{x}$	54	$y = 3\sqrt{x^2-4} + 1$

studiare le seguenti funzioni goniometriche

55	$y = senx + cos^2x$ in $]0,2\pi[$	56	$y = \frac{2cos^2x-1}{cosx}$ in $]-\pi,\pi[$	57	$y = arcsen\frac{x^2-9}{x^2-4}$
58	$y = \frac{tgx-1}{\sqrt{3}tgx-1}$	59	$y = \sqrt{3}senx + cosx$	60	$y = cos^3x + sen^3x$ in $]0,2\pi[$
61	$y = cos^2x - cosx$	62	$y = \frac{arccos(x^2-1)}{x^2-4}$	63	$y = \frac{2sen^2x-1}{\sqrt{2}senx-1}$
64	$y = arctg\frac{x+3}{x-1}$	65	$y = \frac{1-sen2x}{cos2x}$	66	$y = sen\left(x+\frac{\pi}{3}\right) + cos\left(x-\frac{\pi}{6}\right)$
67	$y = \frac{1-senx}{1+cosx}$	68	$y = \frac{2tgx}{1-tg^2x}$	69	$y = 2sen(x^2)$ in $[-\sqrt{2\pi}, \sqrt{2\pi}]$
70	$y = arccos\frac{x^2-9}{x^2-4}$	71	$y = cosx + sen^2x$ in $]0,2\pi[$	72	$y = \frac{sen^2x}{1-2senx}$
73	$y = arctg\sqrt{x^2-9}$	74	$y = \frac{tgx}{1-\sqrt{3}tgx}$	75	$y = arccos\frac{x^2-1}{x^2-4}$
76	$y = \frac{1-senx}{1-cosx}$	77	$y = \frac{cosx-senx}{senx+cosx}$	78	$y = \frac{2sen^2x-1}{senx}$ in $]-\pi,\pi[$
79	$y = arcsen\frac{x^2-1}{x^2-4}$	80	$y = \frac{1+cosx}{cosx}$	81	$y = \frac{arcsen(x^2-1)}{x^2-4}$

studiare le seguenti funzioni esponenziali e logaritmiche

82	$y = e^{\frac{2x-1}{x}}$	83	$y = x \cdot lnx$	84	$y = log_{\frac{1}{2}}\frac{x^2-4}{x^2-1}$
85	$y = \frac{lnx}{x^2}$	86	$y = x^2lnx$	87	$y = \frac{lnx-2}{2lnx+1}$
88	$y = 2^{\frac{2x-1}{x^2}}$	89	$y = x^2e^x$	90	$y = e^{-2x^2}$
91	$y = xe^{-\frac{1}{x}}$	92	$y = \frac{2e^x-1}{e^x+2}$	93	$y = log_{\frac{1}{4}}(1-x^2)$
94	$y = \frac{x}{lnx}$	95	$y = ln^2(x+2)$	96	$y = \frac{3x-2}{e^x}$
97	$y = xe^{-x^2}$	98	$y = \frac{x}{1-2^{\frac{1}{x}}}$	99	$y = 3^{\frac{x-1}{x+1}}$
100	$y = \frac{1}{3}ln^2x - lnx$	101	$y = \frac{1}{log_2(x+3)}$	102	$y = \frac{log_3(x+1)-3}{log_3(x+3)}$

Studio di funzione

103	$y = xe^{\frac{1}{x}}$	104	$y = log_3 \frac{x-3}{x^2-4}$	105	$y = \sqrt{ln(x+3)}$
106	$y = xe^x$	107	$y = \frac{e^x}{x+2}$	108	$y = \frac{1}{\left(\frac{1}{2}\right)^x - 2}$

studiare le seguenti funzioni con i valori assoluti

109	$y = \lvert x-2\rvert - \lvert x+1\rvert$	110	$y = \frac{2-\lvert x\rvert}{2+\lvert x\rvert}$	111	$y = \sqrt{\lvert x^2-2x\rvert - 1} + 2$
112	$y = log_{\frac{1}{2}} \lvert 1-2x+3x^2\rvert$	113	$y = \frac{\lvert senx\rvert}{1-cosx}$	114	$y = \lvert x-1\rvert e^{-\lvert x-1\rvert}$
115	$y = (x^2-4) ln\lvert x^2-4\rvert$	116	$y = \frac{3}{2x-\lvert x^2-1\rvert}$	117	$y = \frac{2x^2-3\lvert x\rvert}{\lvert x-2\rvert}$
118	$y = ln\frac{1-\lvert x\rvert}{1+\lvert x\rvert}$	119	$y = \frac{x^2}{2} + ln\lvert x+1\rvert$	120	$y = 2\lvert x\rvert + \lvert -x^2-x+6\rvert$

esercizi di riepilogo

121	$y = e^{arctg\frac{1}{x^2-1}}$	122	$y = \frac{1+lnx}{1-lnx}$	123	$y = ln(1+e^x)$
124	$y = \frac{2x}{\sqrt{x^2-4}}$	125	$y = \frac{x^2-1}{x^2+1}$	126	$y = \frac{x^2}{e^{(x+1)}}$
127	$y = \sqrt{\frac{x}{x^3-1}}$	128	$y = \frac{ln\lvert x-1\rvert}{x^2-4}$	129	$y = ln\frac{5}{arctg(x-1)}$
130	$y = arcsen\frac{x^2-2}{x^2-1}$	131	$y = e^{\sqrt{\frac{x+2}{x}}}$	132	$y = log_{\frac{1}{2}}\frac{x}{x-1}$
133	$y = ln\frac{3}{arctg(x+1)}$	134	$y = xcosx - senx$	135	$y = \left\lvert\frac{x^3-x}{x^2+1}\right\rvert$
136	$y = xe^{-2x}$	137	$y = \sqrt{\frac{x+2}{x\cdot 2^x}}$	138	$y = \sqrt{1-log_3(1+x)}$
139	$y = x^2 - 4ln(x+1)$	140	$y = 2^x + 2^{-x}$	141	$y = e^{\frac{2x^2-5}{\lvert x\rvert-2}}$
142	$y = ln(x+3x^2)$	143	$y = x^2 e^{\lvert x+1\rvert}$	144	$y = \frac{2senx}{sen^2x - cos^2x}$
145	$y = arctg\frac{1}{ln(x-1)}$	146	$y = \frac{ln(x-1)}{\sqrt{x-1}}$	147	$y = arctg\frac{1}{ln(1-x)}$

Studio di funzione

148	$y = x^x$	149	$y = e^{arctg\,\frac{1}{x-3}}$	150	$y = \sqrt{x^2-1} + arcsen\,\frac{1}{x}$
151	$y = x - ln\,x - \frac{x}{x-1}$	152	$y = \begin{cases} \frac{x}{x+2} & x > 0 \\ 0 & x = 0 \\ \frac{x}{x-2} & x < 0 \end{cases}$	153	$y = \begin{cases} -arctg\sqrt{1-x^2} & -1 < x < 1 \\ 2sen\,\frac{1}{x^2} & x \geq 1 \end{cases}$