ANALISI 1 INGEGNERIA			1 Febbraio 1994
Cognome:		**Nome:**	**Firma:**
Sezione	**Professore**		**Matricola**

- *Una ed una sola delle quattro affermazioni è corretta. Indicarla con una croce.*
- *È consentita una sola correzione per ogni domanda: per annullare una risposta ritenuta errata racchiuderla in un cerchio.*

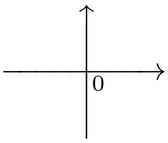
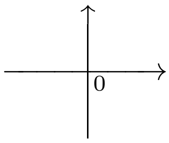
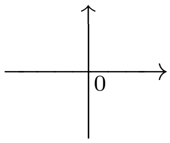
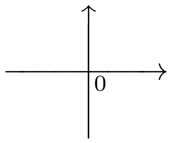
1. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0$ $\forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{b}$ f non ha nè massimo nè minimo in $(-\infty, 0]$; $\boxed{c}$ f ha massimo in $(-\infty, 0]$; $\boxed{d}$ f ha minimo in $(-\infty, 0]$.

2. $F(x) = \displaystyle\int_{-1}^{x} |t|\ dt$. Allora $\boxed{a}$ $F'(0) = 0$; $\boxed{b}$ $F(0) = 0$; $\boxed{c}$ F non è derivabile in 0; $\boxed{d}$ F ha minimo in 0.

3. Sia $f : \mathbf{R} \to \mathbf{R}$ continua e tale che $f(t) = t^2 + 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ $\displaystyle\lim_{t\to0} \frac{f(t) - t^2}{t^4} = 1$; $\boxed{b}$ $f''(0) = 1$; $\boxed{c}$ f ha minimo locale in 0; $\boxed{d}$ f ha massimo locale in 0.

4. $\displaystyle\sum_{n=0}^{+\infty} (\frac{1}{3})^n =$ $\boxed{a}$ $\frac{1}{2}$; $\boxed{b}$ $+\infty$; $\boxed{c}$ $\frac{3}{2}$; $\boxed{d}$ 3.

5. Il grafico di $\sin t^2$ in un intorno dell' origine è :

$\boxed{a}$  ; $\boxed{b}$  ; $\boxed{c}$  ; $\boxed{d}$  .

6. $\displaystyle\int_0^4 \sin(x^2)\ \ dx =$ $\boxed{a}$ $\displaystyle\int_0^2 \frac{\sin(y)}{2\sqrt{y}}\ \ dy$; $\boxed{b}$ $\displaystyle\int_0^2 2y\sin(y)\ \ dy$; $\boxed{c}$ $\displaystyle\int_0^{16} \frac{\sin(y)}{2\sqrt{y}}\ \ dy$; $\boxed{d}$ $\displaystyle\int_0^{16} 2y\sin(y)\ dy$.

7. Sia $z \in \mathbf{C}$ e $|z| > 1$. Se $w = 1/\overline{z}$ allora: $\boxed{a}$ $|w| = |z|^2$; $\boxed{b}$ $|w| > 1$; $\boxed{c}$ $|w| = |z|$; $\boxed{d}$ $|w| = |z|^{-1}$.

8. $\forall\alpha \in \mathbf{R}$ $\exists\beta \in \mathbf{R}$: $x > \beta \Rightarrow f(x) > \alpha$ vuol dire: $\boxed{a}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{b}$ $\lim_{x\to-\infty} f(x) = -\infty$; $\boxed{c}$ $\lim_{x\to+\infty} f(x) = +\infty$; $\boxed{d}$ $\lim_{x\to+\infty} f(x) = -\infty$.

9. $\displaystyle\int_1^{+\infty} \frac{1}{t^2}\ dt =$ $\boxed{a}$ 1; $\boxed{b}$ -1; $\boxed{c}$ $+\infty$; $\boxed{d}$ 0.

10. $\gamma \in \mathbf{R}$ e $\gamma < 0$. Allora $\sqrt{\gamma^2} =$ $\boxed{a}$ $\pm\gamma$; $\boxed{b}$ $i\gamma$; $\boxed{c}$ $-\gamma$; $\boxed{d}$ γ.

ANALISI 1 INGEGNERIA		1 Febbraio 1994
Cognome:	**Nome:**	**Firma:**
Sezione	**Professore**	**Matricola**

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- *È consentita una sola correzione per ogni domanda: per annullare una risposta ritenuta errata racchiuderla in un cerchio.*

1. $\displaystyle\int_0^4 \cos(x^2)\ dx =$ $\boxed{a}$ $\displaystyle\int_0^2 2y\cos(y)\ dy$; $\boxed{b}$ $\displaystyle\int_0^{16} \frac{\cos(y)}{2\sqrt{y}}\ dy$; $\boxed{c}$ $\displaystyle\int_0^{16} 2y\cos(y)\ dy$; $\boxed{d}$ $\displaystyle\int_0^2 \frac{\cos(y)}{2\sqrt{y}}\ dy$.

2. Sia $g : \mathbf{R} \to \mathbf{R}$ continua e tale che $g(t) = -t^2 - 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ $g''(0) = -1$; $\boxed{b}$ g ha minimo locale in 0; $\boxed{c}$ g ha massimo locale in 0; $\boxed{d}$ $\displaystyle\lim_{t\to 0} \frac{g(t) - t^2}{t^4} = 1$.

3. Sia $w \in \mathbf{C}$ e $|w| > 1$. Se $z = 1/\overline{w}$ allora: $\boxed{a}$ $|z| > 1$; $\boxed{b}$ $|w| = |z|$; $\boxed{c}$ $|w| = |z|^{-1}$; $\boxed{d}$ $|z| = |w|^2$.

4. $\displaystyle\int_1^{+\infty} \frac{1}{t}\ dt =$ $\boxed{a}$ $-\frac{1}{2}$; $\boxed{b}$ $+\infty$; $\boxed{c}$ 0; $\boxed{d}$ $\frac{1}{2}$.

5. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0\ \forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ f non ha nè massimo nè minimo in $[2, +\infty)$; $\boxed{b}$ f ha massimo in $[2, +\infty)$; $\boxed{c}$ f ha minimo in $[2, +\infty)$; $\boxed{d}$ $\displaystyle\lim_{x\to+\infty} f(x) = -\infty$.

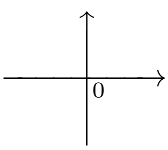
6. $\forall \alpha \in \mathbf{R}\ \exists \beta \in \mathbf{R}\ :\ x < \beta \Rightarrow f(x) > \alpha$ vuol dire: $\boxed{a}$ $\displaystyle\lim_{x\to-\infty} f(x) = -\infty$; $\boxed{b}$ $\displaystyle\lim_{x\to+\infty} f(x) = +\infty$; $\boxed{c}$ $\displaystyle\lim_{x\to+\infty} f(x) = -\infty$; $\boxed{d}$ $\displaystyle\lim_{x\to-\infty} f(x) = +\infty$.

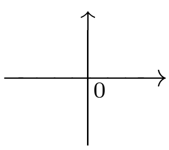
7. $\displaystyle\sum_{n=0}^{+\infty} (\frac{1}{4})^n =$ $\boxed{a}$ $+\infty$; $\boxed{b}$ $\frac{4}{3}$; $\boxed{c}$ 4; $\boxed{d}$ $\frac{1}{3}$.

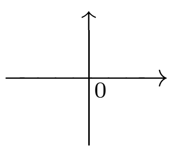
8. $G(x) = \displaystyle\int_{-1}^{x} |t|\ dt$. Allora $\boxed{a}$ $G(0) = 0$; $\boxed{b}$ G non è derivabile in 0; $\boxed{c}$ G ha minimo in 0; $\boxed{d}$ $G'(0) = 0$.

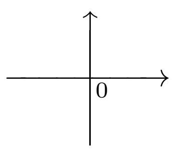
9. $\delta \in \mathbf{R}$ e $\delta < 0$. Allora $\sqrt{\delta^2} =$ $\boxed{a}$ $i\delta$; $\boxed{b}$ $-\delta$; $\boxed{c}$ δ; $\boxed{d}$ $\pm\delta$.

10. Il grafico di $\sin t^3$ in un intorno dell' origine è :

$\boxed{a}$ 

; $\boxed{b}$ 

; $\boxed{c}$ 

; $\boxed{d}$ 

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Sezione	**Professore**	**Matricola**

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- *È consentita una sola correzione per ogni domanda: per annullare una risposta ritenuta errata racchiuderla in un cerchio.*

1. $\forall \alpha \in \mathbf{R} \quad \exists \beta \in \mathbf{R} \;:\; x > \beta \Rightarrow f(x) < \alpha$ vuol dire: $\boxed{a}$ $\lim_{x\to+\infty} f(x) = +\infty$; $\boxed{b}$ $\lim_{x\to+\infty} f(x) = -\infty$; $\boxed{c}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{d}$ $\lim_{x\to-\infty} f(x) = -\infty$.

2. Sia $z \in \mathbf{C}$ e $|z| > 1$. Se $w = 1/\overline{z}$ allora: $\boxed{a}$ $|w| = |z|$; $\boxed{b}$ $|w| = |z|^{-1}$; $\boxed{c}$ $|w| = |z|^2$; $\boxed{d}$ $|w| > 1$.

3. $\sum_{n=0}^{+\infty} (\frac{1}{5})^n =$ $\boxed{a}$ $\frac{5}{4}$; $\boxed{b}$ 5; $\boxed{c}$ $\frac{1}{4}$; $\boxed{d}$ $+\infty$.

4. $\alpha \in \mathbf{R}$ e $\alpha < 0$. Allora $\sqrt{\alpha^2} =$ $\boxed{a}$ $-\alpha$; $\boxed{b}$ α; $\boxed{c}$ $\pm\alpha$; $\boxed{d}$ $i\alpha$.

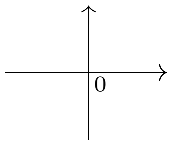
5. $\int_0^4 \sin(x^2)\; dx =$ $\boxed{a}$ $\int_0^{16} \frac{\sin(y)}{2\sqrt{y}}\; dy$; $\boxed{b}$ $\int_0^{16} 2y\sin(y)\; dy$; $\boxed{c}$ $\int_0^{2} \frac{\sin(y)}{2\sqrt{y}}\; dy$; $\boxed{d}$ $\int_0^2 2y\sin(y)\, dy$.

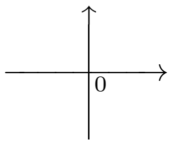
6. $H(x) = \int_{-1}^{x} |t|\, dt$. Allora $\boxed{a}$ H non è derivabile in 0; $\boxed{b}$ H ha minimo in 0; $\boxed{c}$ $H'(0) = 0$; $\boxed{d}$ $H(0) = 0$.

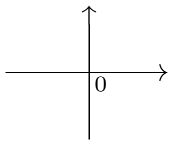
7. $\int_1^{+\infty} \frac{1}{\sqrt{t}}\, dt =$ $\boxed{a}$ $+\infty$; $\boxed{b}$ 0; $\boxed{c}$ $\log e$; $\boxed{d}$ $-\log e$.

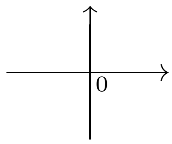
8. Sia $h : \mathbf{R} \to \mathbf{R}$ continua e tale che $h(t) = t^2 + 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ h ha minimo locale in 0; $\boxed{b}$ h ha massimo locale in 0; $\boxed{c}$ $\lim_{t\to 0} \frac{h(t) - t^2}{t^4} = 1$; $\boxed{d}$ $h''(0) = 1$.

9. Il grafico di $\sin t^2$ in un intorno dell' origine è :

$\boxed{a}$ 

; $\boxed{b}$ 

; $\boxed{c}$ 

; $\boxed{d}$ 

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10. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0\ \forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ f ha massimo in $(-\infty, 0]$; $\boxed{b}$ f ha minimo in $(-\infty, 0]$; $\boxed{c}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{d}$ f non ha nè massimo nè minimo in $(-\infty, 0]$.

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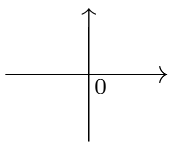
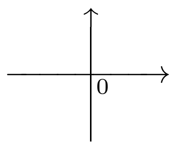
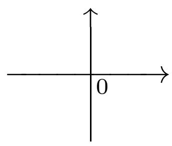
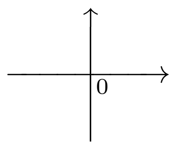
1. $F(x) = \int_{-1}^{x} |t|\, dt$. Allora $\boxed{a}$ F ha minimo in 0; $\boxed{b}$ $F'(0) = 0$; $\boxed{c}$ $F(0) = 0$; $\boxed{d}$ F non è derivabile in 0.

2. $\sum_{n=0}^{+\infty} (\frac{1}{6})^n =$ $\boxed{a}$ 6; $\boxed{b}$ $\frac{1}{5}$; $\boxed{c}$ $+\infty$; $\boxed{d}$ $\frac{6}{5}$.

3. $\int_1^{+\infty} \frac{1}{t^2}\, dt =$ $\boxed{a}$ 0; $\boxed{b}$ 1; $\boxed{c}$ -1; $\boxed{d}$ $+\infty$.

4. Il grafico di $\sin t^3$ in un intorno dell' origine è :

$\boxed{a}$  ; $\boxed{b}$  ; $\boxed{c}$  ; $\boxed{d}$  .

5. $\forall \alpha \in \mathbf{R}\ \ \exists \beta \in \mathbf{R}\ :\ x < \beta \Rightarrow f(x) < \alpha$ vuol dire: $\boxed{a}$ $\lim_{x \to +\infty} f(x) = -\infty$; $\boxed{b}$ $\lim_{x \to -\infty} f(x) = +\infty$; $\boxed{c}$ $\lim_{x \to -\infty} f(x) = -\infty$; $\boxed{d}$ $\lim_{x \to +\infty} f(x) = +\infty$.

6. Sia $f : \mathbf{R} \to \mathbf{R}$ continua e tale che $f(t) = -t^2 - 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ f ha massimo locale in 0; $\boxed{b}$ $\lim_{t \to 0} \frac{f(t) - t^2}{t^4} = 1$; $\boxed{c}$ $f''(0) = -1$; $\boxed{d}$ f ha minimo locale in 0.

7. $\beta \in \mathbf{R}$ e $\beta < 0$. Allora $\sqrt{\beta^2} =$ $\boxed{a}$ β; $\boxed{b}$ $\pm\beta$; $\boxed{c}$ $i\beta$; $\boxed{d}$ $-\beta$.

8. Sia $w \in \mathbf{C}$ e $|w| > 1$. Se $z = 1/\overline{w}$ allora: $\boxed{a}$ $|w| = |z|^{-1}$; $\boxed{b}$ $|z| = |w|^2$; $\boxed{c}$ $|z| > 1$; $\boxed{d}$ $|w| = |z|$.

9. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0\ \forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ f ha minimo in $[2, +\infty)$; $\boxed{b}$ $\lim_{x \to +\infty} f(x) = -\infty$; $\boxed{c}$ f non ha nè massimo nè minimo in $[2, +\infty)$; $\boxed{d}$ f ha massimo in $[2, +\infty)$.

10. $\int_0^4 \cos(x^2)\ dx =$ $\boxed{a}$ $\int_0^{16} 2y \cos(y)\ dy$; $\boxed{b}$ $\int_0^2 \frac{\cos(y)}{2\sqrt{y}}\ dy$; $\boxed{c}$ $\int_0^2 2y \cos(y)\ dy$; $\boxed{d}$ $\int_0^{16} \frac{\cos(y)}{2\sqrt{y}}\ dy$.

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1. Sia $g : \mathbf{R} \to \mathbf{R}$ continua e tale che $g(t) = t^2 + 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ $\lim_{t\to 0} \frac{g(t)-t^2}{t^4} = 1$; $\boxed{b}$ $g''(0) = 1$; $\boxed{c}$ g ha minimo locale in 0; $\boxed{d}$ g ha massimo locale in 0.

2. $\int_1^{+\infty} \frac{1}{t}\, dt =$ $\boxed{a}$ $\frac{1}{2}$; $\boxed{b}$ $-\frac{1}{2}$; $\boxed{c}$ $+\infty$; $\boxed{d}$ 0.

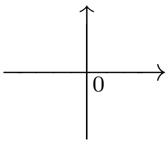
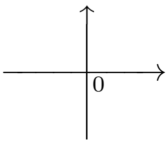
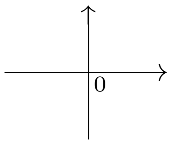
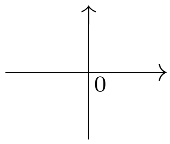
3. $\gamma \in \mathbf{R}$ e $\gamma < 0$. Allora $\sqrt{\gamma^2} =$ $\boxed{a}$ $\pm\gamma$; $\boxed{b}$ $i\gamma$; $\boxed{c}$ $-\gamma$; $\boxed{d}$ γ.

4. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0$ $\forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{b}$ f non ha nè massimo nè minimo in $(-\infty, 0]$; $\boxed{c}$ f ha massimo in $(-\infty, 0]$; $\boxed{d}$ f ha minimo in $(-\infty, 0]$.

5. $G(x) = \int_{-1}^{x} |t|\, dt$. Allora $\boxed{a}$ $G'(0) = 0$; $\boxed{b}$ $G(0) = 0$; $\boxed{c}$ G non è derivabile in 0; $\boxed{d}$ G ha minimo in 0.

6. Sia $z \in \mathbf{C}$ e $|z| > 1$. Se $w = 1/\overline{z}$ allora: $\boxed{a}$ $|w| = |z|^2$; $\boxed{b}$ $|w| > 1$; $\boxed{c}$ $|w| = |z|$; $\boxed{d}$ $|w| = |z|^{-1}$.

7. Il grafico di $\sin t^2$ in un intorno dell' origine è :

$\boxed{a}$  ; $\boxed{b}$  ; $\boxed{c}$  ; $\boxed{d}$  .

8. $\sum_{n=0}^{+\infty} (\frac{1}{7})^n =$ $\boxed{a}$ $\frac{1}{6}$; $\boxed{b}$ $+\infty$; $\boxed{c}$ $\frac{7}{6}$; $\boxed{d}$ 7.

9. $\int_0^4 \sin(x^2)\ dx =$ $\boxed{a}$ $\int_0^2 \frac{\sin(y)}{2\sqrt{y}}\ dy$; $\boxed{b}$ $\int_0^2 2y\sin(y)\ dy$; $\boxed{c}$ $\int_0^{16} \frac{\sin(y)}{2\sqrt{y}}\ dy$; $\boxed{d}$ $\int_0^{16} 2y\sin(y)\, dy$.

10. $\forall\alpha \in \mathbf{R}$ $\exists\beta \in \mathbf{R}$: $x > \beta \Rightarrow f(x) > \alpha$ vuol dire: $\boxed{a}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{b}$ $\lim_{x\to-\infty} f(x) = -\infty$; $\boxed{c}$ $\lim_{x\to+\infty} f(x) = +\infty$; $\boxed{d}$ $\lim_{x\to+\infty} f(x) = -\infty$.

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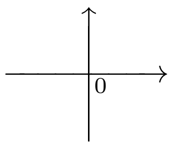
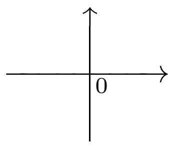
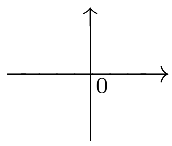
1. Sia $w \in \mathbf{C}$ e $|w| > 1$. Se $z = 1/\overline{w}$ allora: $\boxed{a}$ $|z| > 1$; $\boxed{b}$ $|w| = |z|$; $\boxed{c}$ $|w| = |z|^{-1}$; $\boxed{d}$ $|z| = |w|^2$.

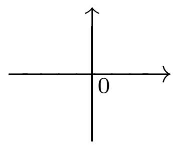
2. $\delta \in \mathbf{R}$ e $\delta < 0$. Allora $\sqrt{\delta^2} =$ $\boxed{a}$ $i\delta$; $\boxed{b}$ $-\delta$; $\boxed{c}$ δ; $\boxed{d}$ $\pm\delta$.

3. Il grafico di $\sin t^3$ in un intorno dell' origine è :

$\boxed{a}$ 

; $\boxed{b}$ 

; $\boxed{c}$ 

; $\boxed{d}$ 

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4. $\displaystyle\int_0^4 \cos(x^2)\ dx =$ $\boxed{a}$ $\displaystyle\int_0^2 2y\cos(y)\ dy$; $\boxed{b}$ $\displaystyle\int_0^{16} \frac{\cos(y)}{2\sqrt{y}}\ dy$; $\boxed{c}$ $\displaystyle\int_0^{16} 2y\cos(y)\ dy$; $\boxed{d}$ $\displaystyle\int_0^2 \frac{\cos(y)}{2\sqrt{y}}\ dy$.

5. Sia $h : \mathbf{R} \to \mathbf{R}$ continua e tale che $h(t) = -t^2 - 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ $h''(0) = -1$; $\boxed{b}$ h ha minimo locale in 0; $\boxed{c}$ h ha massimo locale in 0; $\boxed{d}$ $\displaystyle\lim_{t\to 0} \frac{h(t) - t^2}{t^4} = 1$.

6. $\displaystyle\sum_{n=0}^{+\infty} (\frac{1}{8})^n =$ $\boxed{a}$ $+\infty$; $\boxed{b}$ $\frac{8}{7}$; $\boxed{c}$ 8; $\boxed{d}$ $\frac{1}{7}$.

7. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0\ \forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ f non ha nè massimo nè minimo in $[2, +\infty)$; $\boxed{b}$ f ha massimo in $[2, +\infty)$; $\boxed{c}$ f ha minimo in $[2, +\infty)$; $\boxed{d}$ $\displaystyle\lim_{x\to+\infty} f(x) = -\infty$.

8. $\displaystyle\int_1^{+\infty} \frac{1}{\sqrt{t}}\, dt =$ $\boxed{a}$ $-\log e$; $\boxed{b}$ $+\infty$; $\boxed{c}$ 0; $\boxed{d}$ $\log e$.

9. $\forall \alpha \in \mathbf{R}\ \exists \beta \in \mathbf{R} : x < \beta \Rightarrow f(x) > \alpha$ vuol dire: $\boxed{a}$ $\displaystyle\lim_{x\to-\infty} f(x) = -\infty$; $\boxed{b}$ $\displaystyle\lim_{x\to+\infty} f(x) = +\infty$; $\boxed{c}$ $\displaystyle\lim_{x\to+\infty} f(x) = -\infty$; $\boxed{d}$ $\displaystyle\lim_{x\to-\infty} f(x) = +\infty$.

10. $H(x) = \displaystyle\int_{-1}^{x} |t|\, dt$. Allora $\boxed{a}$ $H(0) = 0$; $\boxed{b}$ H non è derivabile in 0; $\boxed{c}$ H ha minimo in 0; $\boxed{d}$ $H'(0) = 0$.

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Cognome:	**Nome:**	**Firma:**
Sezione	**Professore**	**Matricola**

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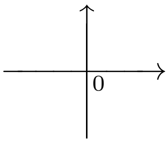
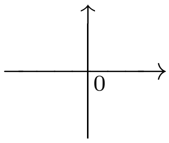
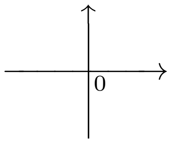
- *È consentita una sola correzione per ogni domanda: per annullare una risposta ritenuta errata racchiuderla in un cerchio.*

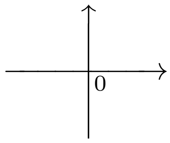
1. $\sum_{n=0}^{+\infty}(\frac{1}{9})^n =$ $\boxed{a}$ $\frac{9}{8}$; $\boxed{b}$ 9; $\boxed{c}$ $\frac{1}{8}$; $\boxed{d}$ $+\infty$.

2. Il grafico di $\sin t^2$ in un intorno dell' origine è :

$\boxed{a}$ 

; $\boxed{b}$ 

; $\boxed{c}$ 

; $\boxed{d}$ 

.

3. $f \in \mathcal{C}^1(\mathbf{R}\,)$ e $f'(x) < 0$ $\forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ f ha massimo in $(-\infty, 0]$; $\boxed{b}$ f ha minimo in $(-\infty, 0]$; $\boxed{c}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{d}$ f non ha nè massimo nè minimo in $(-\infty, 0]$.

4. $\forall\alpha \in \mathbf{R}$ $\exists\beta \in \mathbf{R}$: $x > \beta \Rightarrow f(x) < \alpha$ vuol dire: $\boxed{a}$ $\lim_{x\to+\infty} f(x) = +\infty$; $\boxed{b}$ $\lim_{x\to+\infty} f(x) = -\infty$; $\boxed{c}$ $\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{d}$ $\lim_{x\to-\infty} f(x) = -\infty$.

5. Sia $z \in \mathbf{C}$ e $|z| > 1$. Se $w = 1/\overline{z}$ allora: $\boxed{a}$ $|w| = |z|$; $\boxed{b}$ $|w| = |z|^{-1}$; $\boxed{c}$ $|w| = |z|^2$; $\boxed{d}$ $|w| > 1$.

6. $\int_1^{+\infty} \frac{1}{t^2}\,dt =$ $\boxed{a}$ $+\infty$; $\boxed{b}$ 0; $\boxed{c}$ 1; $\boxed{d}$ -1.

7. $\int_0^4 \sin(x^2)\ dx =$ $\boxed{a}$ $\int_0^{16} \frac{\sin(y)}{2\sqrt{y}}\ dy$; $\boxed{b}$ $\int_0^{16} 2y\sin(y)\ dy$; $\boxed{c}$ $\int_0^{2} \frac{\sin(y)}{2\sqrt{y}}\ dy$; $\boxed{d}$ $\int_0^2 2y\sin(y)\,dy$.

8. $\alpha \in \mathbf{R}$ e $\alpha < 0$. Allora $\sqrt{\alpha^2} =$ $\boxed{a}$ $-\alpha$; $\boxed{b}$ α; $\boxed{c}$ $\pm\alpha$; $\boxed{d}$ $i\alpha$.

9. $F(x) = \int_{-1}^{x} |t|\,dt$. Allora $\boxed{a}$ F non è derivabile in 0; $\boxed{b}$ F ha minimo in 0; $\boxed{c}$ $F'(0) = 0$; $\boxed{d}$ $F(0) = 0$.

10. Sia $f : \mathbf{R} \to \mathbf{R}$ continua e tale che $f(t) = t^2 + 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ f ha minimo locale in 0; $\boxed{b}$ f ha massimo locale in 0; $\boxed{c}$ $\lim_{t\to 0} \frac{f(t) - t^2}{t^4} = 1$; $\boxed{d}$ $f''(0) = 1$.

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Cognome:	**Nome:**	**Firma:**
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- *È consentita una sola correzione per ogni domanda: per annullare una risposta ritenuta errata racchiuderla in un cerchio.*

1. $\displaystyle\int_1^{+\infty} \frac{1}{t}\, dt =$ $\boxed{a}$ 0; $\boxed{b}$ $\frac{1}{2}$; $\boxed{c}$ $-\frac{1}{2}$; $\boxed{d}$ $+\infty$.

2. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0$ $\forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ f ha minimo in $[2, +\infty)$; $\boxed{b}$ $\displaystyle\lim_{x\to+\infty} f(x) = -\infty$; $\boxed{c}$ f non ha nè massimo nè minimo in $[2, +\infty)$; $\boxed{d}$ f ha massimo in $[2, +\infty)$.

3. $\displaystyle\int_0^4 \cos(x^2)\ dx =$ $\boxed{a}$ $\displaystyle\int_0^{16} 2y\cos(y)\ dy$; $\boxed{b}$ $\displaystyle\int_0^2 \frac{\cos(y)}{2\sqrt{y}}\ dy$; $\boxed{c}$ $\displaystyle\int_0^2 2y\cos(y)\ dy$; $\boxed{d}$ $\displaystyle\int_0^{16} \frac{\cos(y)}{2\sqrt{y}}\ dy$.

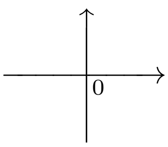
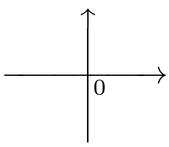
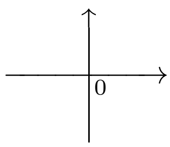
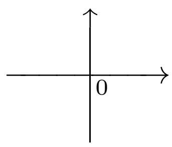
4. $G(x) = \displaystyle\int_{-1}^{x} |t|\, dt$. Allora $\boxed{a}$ G ha minimo in 0; $\boxed{b}$ $G'(0) = 0$; $\boxed{c}$ $G(0) = 0$; $\boxed{d}$ G non è derivabile in 0.

5. $\displaystyle\sum_{n=0}^{+\infty} \left(\frac{1}{10}\right)^n =$ $\boxed{a}$ 10; $\boxed{b}$ $\frac{1}{9}$; $\boxed{c}$ $+\infty$; $\boxed{d}$ $\frac{10}{9}$.

6. $\beta \in \mathbf{R}$ e $\beta < 0$. Allora $\sqrt{\beta^2} =$ $\boxed{a}$ β; $\boxed{b}$ $\pm\beta$; $\boxed{c}$ $i\beta$; $\boxed{d}$ $-\beta$.

7. $\forall \alpha \in \mathbf{R}$ $\exists \beta \in \mathbf{R}$: $x < \beta \Rightarrow f(x) < \alpha$ vuol dire: $\boxed{a}$ $\displaystyle\lim_{x\to+\infty} f(x) = -\infty$; $\boxed{b}$ $\displaystyle\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{c}$ $\displaystyle\lim_{x\to-\infty} f(x) = -\infty$; $\boxed{d}$ $\displaystyle\lim_{x\to+\infty} f(x) = +\infty$.

8. Il grafico di $\sin t^3$ in un intorno dell' origine è :

$\boxed{a}$  ; $\boxed{b}$  ; $\boxed{c}$  ; $\boxed{d}$  .

9. Sia $g : \mathbf{R} \to \mathbf{R}$ continua e tale che $g(t) = -t^2 - 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ g ha massimo locale in 0; $\boxed{b}$ $\displaystyle\lim_{t\to 0} \frac{g(t) - t^2}{t^4} = 1$; $\boxed{c}$ $g''(0) = -1$; $\boxed{d}$ g ha minimo locale in 0.

10. Sia $w \in \mathbf{C}$ e $|w| > 1$. Se $z = 1/\overline{w}$ allora: $\boxed{a}$ $|w| = |z|^{-1}$; $\boxed{b}$ $|z| = |w|^2$; $\boxed{c}$ $|z| > 1$; $\boxed{d}$ $|w| = |z|$.

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- *È consentita una sola correzione per ogni domanda: per annullare una risposta ritenuta errata racchiuderla in un cerchio.*

1. $\alpha \in \mathbf{R}$ e $\alpha < 0$. Allora $\sqrt{\alpha^2} =$ $\boxed{a}$ $\pm\alpha$; $\boxed{b}$ $i\alpha$; $\boxed{c}$ $-\alpha$; $\boxed{d}$ α.

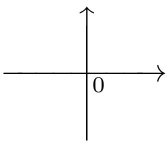
2. $\displaystyle\int_0^4 \sin(x^2)\ dx =$ $\boxed{a}$ $\displaystyle\int_0^2 \frac{\sin(y)}{2\sqrt{y}}\ dy$; $\boxed{b}$ $\displaystyle\int_0^2 2y\sin(y)\ dy$; $\boxed{c}$ $\displaystyle\int_0^{16} \frac{\sin(y)}{2\sqrt{y}}\ dy$; $\boxed{d}$ $\displaystyle\int_0^{16} 2y\sin(y)\, dy$.

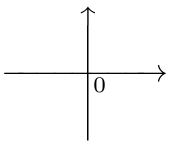
3. $\forall\alpha \in \mathbf{R}\ \ \exists\beta \in \mathbf{R}\ :\ x > \beta \Rightarrow f(x) > \alpha$ vuol dire: $\boxed{a}$ $\displaystyle\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{b}$ $\displaystyle\lim_{x\to-\infty} f(x) = -\infty$; $\boxed{c}$ $\displaystyle\lim_{x\to+\infty} f(x) = +\infty$; $\boxed{d}$ $\displaystyle\lim_{x\to+\infty} f(x) = -\infty$.

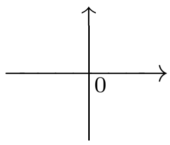
4. Sia $h : \mathbf{R} \to \mathbf{R}$ continua e tale che $h(t) = t^2 + 2t^4 + o(t^4)$ per $t \to 0$. Allora: $\boxed{a}$ $\displaystyle\lim_{t\to0} \frac{h(t)-t^2}{t^4} = 1$; $\boxed{b}$ $h''(0) = 1$; $\boxed{c}$ h ha minimo locale in 0; $\boxed{d}$ h ha massimo locale in 0.

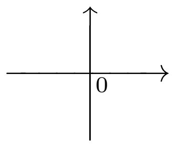
5. $\displaystyle\int_1^{+\infty} \frac{1}{\sqrt{t}}\, dt =$ $\boxed{a}$ $\log e$; $\boxed{b}$ $-\log e$; $\boxed{c}$ $+\infty$; $\boxed{d}$ 0.

6. Il grafico di $\sin t^2$ in un intorno dell' origine è :

$\boxed{a}$ 

; $\boxed{b}$ 

; $\boxed{c}$ 

; $\boxed{d}$ 

.

7. $H(x) = \displaystyle\int_{-1}^{x} |t|\ dt$. Allora $\boxed{a}$ $H'(0) = 0$; $\boxed{b}$ $H(0) = 0$; $\boxed{c}$ H non è derivabile in 0; $\boxed{d}$ H ha minimo in 0.

8. $f \in \mathcal{C}^1(\mathbf{R})$ e $f'(x) < 0\ \forall x \in \mathbf{R}$, allora sicuramente: $\boxed{a}$ $\displaystyle\lim_{x\to-\infty} f(x) = +\infty$; $\boxed{b}$ f non ha nè massimo nè minimo in $(-\infty, 0]$; $\boxed{c}$ f ha massimo in $(-\infty, 0]$; $\boxed{d}$ f ha minimo in $(-\infty, 0]$.

9. Sia $z \in \mathbf{C}$ e $|z| > 1$. Se $w = 1/\overline{z}$ allora: $\boxed{a}$ $|w| = |z|^2$; $\boxed{b}$ $|w| > 1$; $\boxed{c}$ $|w| = |z|$; $\boxed{d}$ $|w| = |z|^{-1}$.

10. $\displaystyle\sum_{n=0}^{+\infty} (\frac{1}{11})^n =$ $\boxed{a}$ $\frac{1}{10}$; $\boxed{b}$ $+\infty$; $\boxed{c}$ $\frac{11}{10}$; $\boxed{d}$ 11.