Unit 6 - The inverse Laplace transform

Week-4 Assessment

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-08-28, 23:59 IST.

1) The value of the integral $\int_{-a}^{a} \frac{\sqrt{a^2-x^2}}{1+x^2}\,dx$ equals to *1 point*

- $\pi(\sqrt{a^2+1}-1)$
- $\pi(\sqrt{a+1}-1)$
- $\pi(\sqrt{2a^2-1}-1)$
- $\pi(\sqrt{2a-1}-1)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\pi(\sqrt{a^2+1}-1)$

2) The value of the integral $\int_{-1/a}^{1/a} \frac{\sqrt{1-a^2x^2}}{1+a^2x^2}\,dx$ equals to *1 point*

- $\pi(\sqrt{2}-a)$
- $\pi(a\sqrt{2}-1)$
- $\pi(\sqrt{2a}-1)$
- $\pi(\sqrt{2}-1)/a$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\pi(\sqrt{2}-1)/a$

3) The value of the integral $\int_0^2 \frac{1}{\sqrt{x(2-x)}}\,dx$ equals to *1 point*

- 0
- $\pi/2$
- π
- 2π

No, the answer is incorrect.
Score: 0
Accepted Answers:
π

4) The value of the integral $\int_0^3 \frac{1}{\sqrt{x(3-x)}}\,dx$ equals to *1 point*

- 0
- $\pi/3$
- 3π
- π

No, the answer is incorrect.
Score: 0
Accepted Answers:
π

5) The value of the integral $\int_0^{10} \frac{1}{\sqrt{x(10-x)}}\,dx$ equals to *1 point*

- 0
- 10π
- $\pi/10$
- π

No, the answer is incorrect.
Score: 0
Accepted Answers:
π

6) Given the Bromwich integral $f(t)=\mathcal{L}^{-1}(F(s))=\frac{1}{2\pi i}\int_{\gamma-i\infty}^{\gamma+i\infty}F(s)e^{st}\,ds$, then $\mathcal{L}^{-1}(\frac{1}{s-3})$ equals to *1 point*

- $e^t/3$
- $e^{t/3}$
- e^{3t}
- $3e^t$

No, the answer is incorrect.
Score: 0
Accepted Answers:
e^{3t}

7) Given the Bromwich integral $f(t)=\mathcal{L}^{-1}(F(s))=\frac{1}{2\pi i}\int_{\gamma-i\infty}^{\gamma+i\infty}F(s)e^{st}\,ds$, then $\mathcal{L}^{-1}(\frac{3}{s^2+9})$ equals to *1 point*

- $\sin(t/3)$
- $\sin(3t)$
- $\sin(9t)$
- $9\sin(t)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\sin(3t)$

8) Given the Bromwich integral $f(t)=\mathcal{L}^{-1}(F(s))=\frac{1}{2\pi i}\int_{\gamma-i\infty}^{\gamma+i\infty}F(s)e^{st}\,ds$, then $\mathcal{L}^{-1}(\frac{s}{s^2+4})$ equals to *1 point*

- $\cos(t/2)$
- $4\cos(t)$
- $\cos(4t)$
- $\cos(2t)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\cos(2t)$

9) Given the Bromwich integral $f(t)=\mathcal{L}^{-1}(F(s))=\frac{1}{2\pi i}\int_{\gamma-i\infty}^{\gamma+i\infty}F(s)e^{st}\,ds$, then $\mathcal{L}^{-1}(\frac{2}{s^3})$ equals to *1 point*

- t^3
- t^4
- t^2
- $\cos(t)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
t^2

10) Given the Bromwich integral $f(t)=\mathcal{L}^{-1}(F(s))=\frac{1}{2\pi i}\int_{\gamma-i\infty}^{\gamma+i\infty}F(s)e^{st}\,ds$, then $\mathcal{L}^{-1}(\frac{5s+s}{s^2+1})$ equals to *1 point*

- $5\sin(t)+\cos(t)$
- $\sin(t)+5\cos(t)$
- $\sin(5t)+\cos(t)$
- $\sin(t)+\cos(5t)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$5\sin(t)+\cos(t)$

11) The value of the integral $\int_0^\infty \frac{x^{-p}}{(a-x)}\,dx$ equals to *1 point*

- $-\pi a^{-p}\cot(p\pi)$
- $-\pi a^{p}\cot(p\pi)$
- $-\pi a^{-p^2}\cot(p\pi)$
- $-\pi a^{p^2}\cot(p\pi)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$-\pi a^{-p}\cot(p\pi)$