

1

$$\alpha < 0$$

2

$$\log\left(\frac{\pi}{\pi-1}\right)$$

3

$$\frac{1}{\log x}$$

4

$$\frac{\pi}{2} + \log 2$$

5

$$\frac{2}{5}$$

6

$$u(t) = \frac{2}{2-t^2}$$

7

$$u(t) = \frac{1}{2} + ce^{t^2}$$

8

$$u(t) = c_1 e^{-\sqrt{z}t} \begin{pmatrix} e^{i\sqrt{z}t} & -e^{-i\sqrt{z}t} \\ 0 & ce^{-\sqrt{z}t} \end{pmatrix} = 2ic_1 e^{-\sqrt{z}t} \begin{pmatrix} \sin(\sqrt{z}t) \\ \sin(\sqrt{z}t) \end{pmatrix}$$

1

$$\alpha < 0$$


---

2

$$\log \frac{e}{e-1}$$


---

3

$$\frac{e^x}{x}$$


---

4

$$2 - \frac{1}{2} \log 5$$


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5

$$2\sqrt{2} - 2$$


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6

$$u(t) = \frac{2}{2+t^2}$$


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7

$$u(t) = 2 + ce^{-t^2/2} \quad (c \in \mathbb{R})$$


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8

$$u(t) = C_1 e^{\sqrt{5}t} \begin{pmatrix} e^{i\sqrt{5}t} & -i\sqrt{5}t \\ e^{-i\sqrt{5}t} & i\sqrt{5}t \end{pmatrix} = 2ie^{\sqrt{5}t} \begin{pmatrix} \cos(\sqrt{5}t) \\ \sin(\sqrt{5}t) \end{pmatrix}$$


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$$(0 \quad c e^{\sqrt{5}t} \sin(\sqrt{5}t))$$

II