

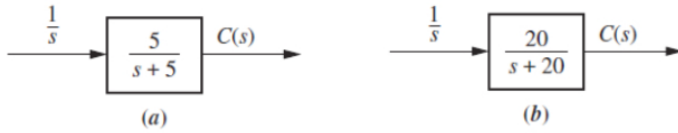
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**Question: Find the output response, c(t), for each of the system shown bel...**


Find the output response, c(t), for each of the system shown below. Find the time constant, rise time, and settling time for each case.



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**Expert Answer**

Anonymous answered this  
426 answers

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(a) for fig(a)

$$\frac{C(s)}{R(s)} = \frac{5}{s+5}$$

$$C(s) = \frac{5R(s)}{s+5}$$

$$C(s) = \frac{5}{s(s+5)}$$

$$C(s) = \frac{1}{s} - \frac{1}{s+5}$$

$$C(t) = (1 - e^{-5t}) \text{ --- ①}$$

from equation ①

standard form is,  $C(t) = (1 - e^{-t/\tau}) \text{ --- ②}$

compare ① & ②

Time constant,  $\tau = \frac{1}{5} = 0.2 \text{ sec.}$

Rise time =  $2.2\tau$   
=  $2.2(0.2)$

$t_r = 0.44 \text{ sec}$

settling time  $t_s = 4\tau$   
=  $4 \times 0.2$

$t_s = 0.8 \text{ sec}$

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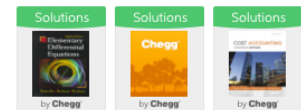
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(b) From fig (b)

$$\frac{C(s)}{R(s)} = \frac{20}{s+20}$$

$$\Rightarrow C(s) = \frac{20 R(s)}{s+20}$$

$$C(s) = \frac{20}{s(s+20)}$$

$$C(s) = \frac{1}{s} - \frac{1}{s+20}$$

$$c(t) = 1 - e^{-20t} \quad \text{--- (1)}$$

standard form is,

$$c(t) = 1 - e^{-t/\tau} \quad \text{--- (2)}$$

compare (1) & (2)

$$\text{Time constant } \tau = \frac{1}{20} = 0.05 \text{ sec}$$

$$\text{Rise time} = 2.2\tau$$

$$= 2.2 \times 0.05$$

$$t_r = 0.11 \text{ sec}$$

$$\text{setting time } t_s = 4\tau$$

$$= 4 \times 0.05$$

$$t_s = 0.2 \text{ sec}$$

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Interview either (i) a person you know over 65 or (ii) a child you know under 16 about their experience, attitude and expectations of computers. What factors would you take into account if you were designing a

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you answer this question before but I have a question :Initialization minimum difference should be inside ...

In this task we will consider a binary search tree T. The algorithm considered in this task on input T and a number x and checks whether T has a node whose value is x.  
In this version, we consider a task of finding a node of T whose value is x. The input is a tree T and a number x. The output is the number of the node of T that has the value x or -1 if there is no such node. If the number stored in the root of T are 1, 2, 3, 4 and x = 3 then the value will be 2.  
Write a program which input is a binary search tree T and an integer number x. The program should print the number of a node of T that is equal to x. The number of the program must be 0001 when it is the input of the tree.

[See answer](#)

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Q: 7. For each of the transfer function shown below, find the locations of the poles and zeros. Plot them on the s-plane. a.  $32+55+64s+1es(s^2+8s+45)(S+1)$  c.  $s(s+2)(8+5)$  and report the kind 8. For each of the transfer function below, find the value of Sand of response expected. a.  $52+85+12.225$  b.  $32+30+225$

A: [See answer](#) 100% (1 rating)

Q: Find the output response,  $c(t)$ , for each of the systems shown in Fig. 1. Also find the time constant, rise time, and settling time for each case.  $s+5$  (a)

A: See answer

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