() a) No, because that is colder then the ambient temperature

then the ambient temperature
$$df = h(f(t) - 70)$$

$$\frac{1}{f(t)-70} \frac{df}{dt} = h$$

Sign-70 dt dt = Su dt v=f(t)-70 = kt+C

du= df S = do = let +C In (u) = ht+L

$$(n | f(t) - 70| = kt + C$$

$$f(t) - 70 = kt + C$$

$$f(t) - 70 = C$$

$$t = 0, f(0) = 212$$

212-70 = e C

Not enough information to find

k, so you can solve

C= In (141)

2) a) 50/750 = 1/15 6.1=1/10 so the amount of sugar should be increasing over the, Not decreasing, so this is not possible b) slo)=50 over time, the concentration will get closer to the concentration of the mixture floring in, so the limit is . 1 + 750 = 75

$$\frac{dS}{dt} = .248/L \cdot \left[\frac{3L}{min} - \frac{3L}{min} \cdot \frac{S(t)}{750}\right]$$

$$\frac{dS}{dt} = 2.44 \text{ us/min} - \frac{2.81t}{125} \text{ us/min}$$

b)
$$\frac{ds}{1t} = -\frac{1}{135} \left(s(t) - 150 \right)$$

$$\frac{1}{5(41-150)} \frac{ds}{dt} = -\frac{2}{145}$$

$$\frac{1}{5(41-150)} \frac{ds}{dt} = \frac{3}{145} \frac{3}{145}$$

$$\frac{1}{5(41-150)} \frac{ds}{dt} = \frac{3}{145} \frac{3}{145} \frac{dt}{dt}$$

$$\int \frac{1}{s(t)-1500t} ds = \int \frac{2}{125} dt$$

$$U = s(t)-150 = -2t + C$$

$$du = ds$$

$$du = ds$$

$$\int_{0}^{1} du = -\frac{2t}{12} + C$$

$$\ln |u| = -\frac{2t}{12} + C$$

$$\ln |u| = -\frac{2t}{12} + C$$

$$\ln |u| = -\frac{2t}{12} + C$$

$$|n| |u| = -\frac{\lambda \epsilon}{125} + C$$
 $|n| |s| |s| |s| = -\frac{\lambda}{2}$

$$|n| s(t) - |so| = -\frac{3t}{125} + C$$
 $|so-s(t)| = e^{-\frac{3t}{125}} + C$

$$|n| siti-|so| = 125$$

 $|sit| - |so| = -2t + C$
 $|sin| - |so| = 0$
 $|sin| - |so| = 0$

$$(50-51t) = e^{-2t} + ($$
 $5(0)=50$, so
 $(= h(100))$

$$|50 - S(t)| = e^{-\frac{1}{2}t} + \ln(100)$$

$$S(t) = |50 - e^{-\frac{1}{2}t} + \ln(100)$$

$$S(t) = |50 - e^{-\frac{1}{2}t} + \ln(100)$$

C) sc(0)= 150-100 e-33 ~ 64.79

$$\frac{\ln(x^4)}{\sqrt{x}} = \frac{\ln(x^3)}{x}$$

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either == 0 (never hoppens)

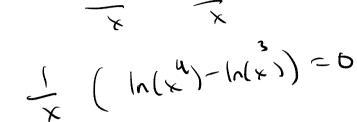
(n(x)-(n(x3) = 4 ln(x)-3 ln(x)

= (n(x)

or (n(2) -(n(2))=0

12(4)=0

x= (



$$= \frac{e^3}{5} \left| \frac{4(n(x) - 3(n(x))}{x} \right| dx$$

= 5	×	7	1000
e	(n(x)	<i>A</i> ~	

$$= \frac{1}{x} + \frac{1}{x} = \frac{1}{x}$$

$$= \frac{1}{x} + \frac{1}{x} = \frac{1}{x} =$$

$= \int_{1}^{e} \frac{\ln(x)}{x} dx$				
	3	(x)	d¥	