Question 8

BOARD OF STUDIES
NEW SOUTH WALES

Q8.

$N_0 = 18$.

a) $1923 - 18$.

$1993 - 5000$.

N = No of koala.

$N = N_0 e^{kt}$

N_0 k constant

$18 = 18e^{k1}$

$18 = 18e^{k}$

$e^k = 1$

$k = \log_e 1$

$K = 0$.

$5000 = 18e^{k70}$

$\frac{2500}{9} = e^{k70}$.

if $k = 0$.

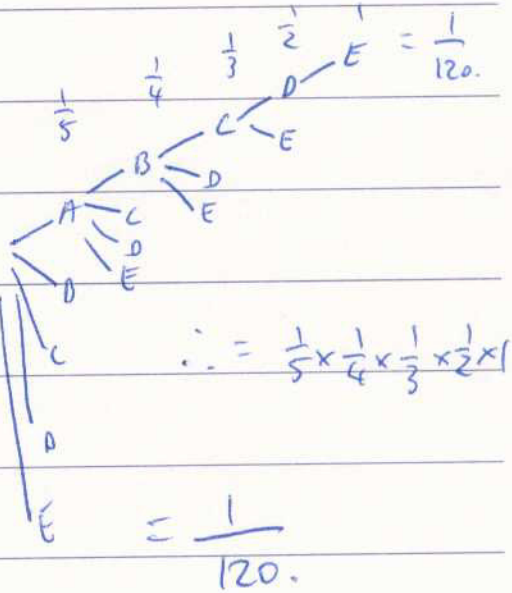
then

$N = 18e^{0}$

b) ABCDE = 5.

(i) A drawn first = $\frac{1}{5} = .1$.

(ii)



$\therefore = \frac{1}{5} \times \frac{1}{4} \times \frac{1}{3} \times \frac{1}{2} \times 1$

$= \frac{1}{120}$.

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BOARD OF STUDIES
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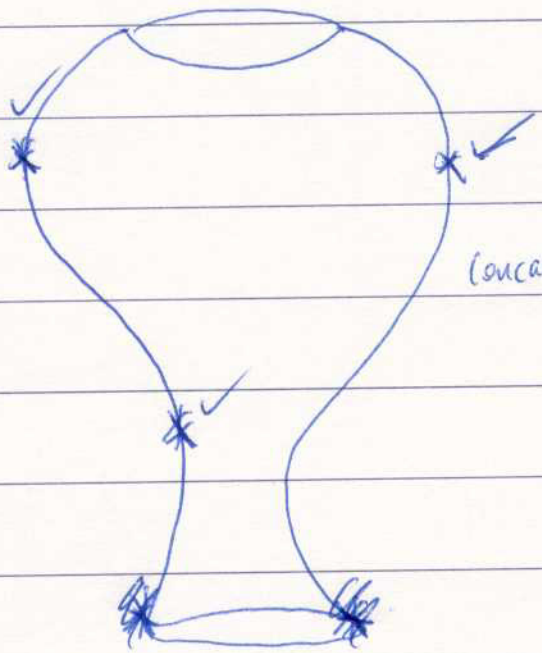
c) (i) $\frac{dy}{dt}$ max.

(ii)



concavity change ∴ ✓.