

AP Calculus BC 2000 Student Samples

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Work for problem 2(a) Runner A $n = \frac{10-0}{3-0} = \frac{10}{3}$ $p = \frac{10}{3}(t-3)$ $v(t) = \frac{10}{3}t^{2}$ $1(z) = \frac{10}{3}(z)$ = 6.667 m/s

2

2

Runner B v(t)= 24t $V(2) = \frac{24(2)}{7(2)+3}$ = 6.857 m/s

2

2

2

2

2

A,

Work for problem 2(b)

KUNNEV B Kunner A V(t)= 24t-2++3 v(1)= 竖七 $a(t)=v'(t)=\frac{(2t+3)(24)-(2)(24t)}{(2t+3)^2}$ (+)=v'(+)=13 = 48t+ 72-48t (2++2)= (a(2)= 3.333 m/32 = 72 (2+3)° $a(2) = \frac{72}{(2(2)+3)^2}$ $= \frac{72}{4a} = 1.469 \text{ m/}{3^2}$

2 2 2 2 2 2 2 2 2 2 2
$$A_{z}$$

Work for problem 2(c)
Runnell A
Total Distance = $\int_{0}^{10} \sqrt{1}t$ dt
= $\int_{0}^{3} (\frac{10}{3}t) dt + \int_{3}^{10} (10) dt$
= $16n + 70n$
= $85 m$

$$\frac{\text{RunnuB}}{\text{Total Distance} = \int_{0}^{10} v(t) dt}$$
$$= \int_{0}^{10} \left(\frac{24t}{2t+3}\right) dt$$
$$= 83.336 \text{ m}$$

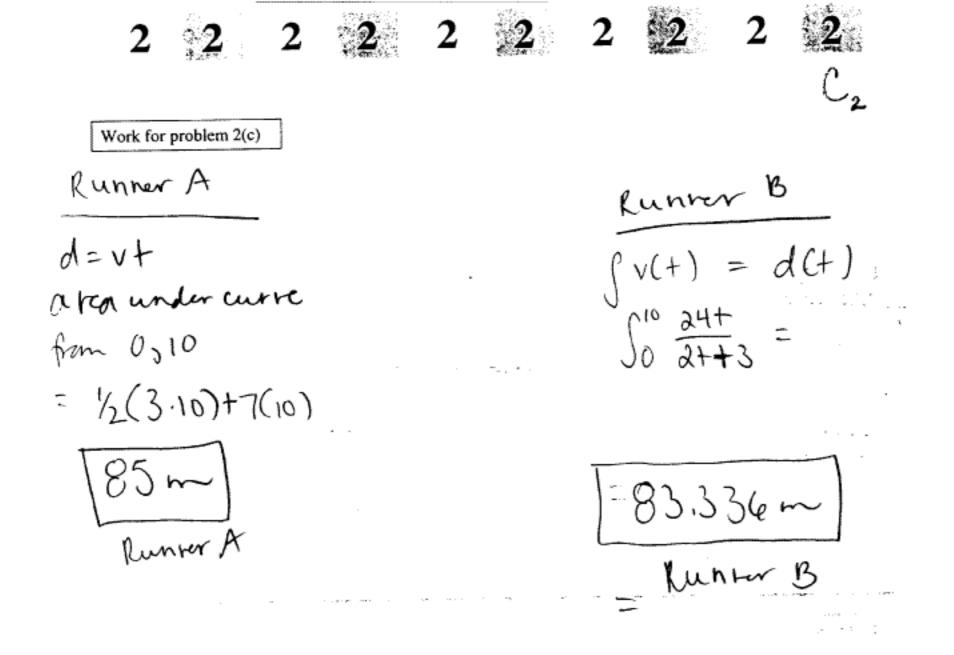
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Work for problem 2(a) Purput
$$(g') = Runsie B = J(t) = \frac{24t}{2t+5}$$

Runner A
from the $V(\Phi) = Tm/s$
 $graph = \frac{48}{T} = 6.55 m/5$

Work for problem 2(b)
Runner A

$$(2,7) \& (3,10)$$

availeration
 $a(t) = 10-7$
 $3-2$
 $= 3m/s^2$
 $a(2) = 10$

Runner: B

$$i(t) = \frac{24t}{2t+3}$$

$$a(t) = \frac{(14)(2t+3) - (24t)(2)}{(2t+3)^2}$$

$$= \frac{48t+72 - 48t}{(2t+3)^2}$$

$$a(2) = \frac{72}{(2(2)+3)^2}$$

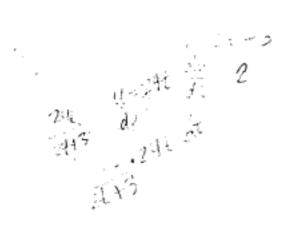
$$= \frac{72}{(7)^2}$$

$$= 1.47 \text{ m} | 5^2$$

Continue problem 2 on page 7.

2 2 2 2 2 2 2 2 2 2 2 2 2
$$F_{\Sigma}$$

Work for problem 2(c)
Total distance connect by Rumma $A = Aria under the v-t graph.$
 $= \frac{1}{2} \left(\frac{15}{2}\right) (3) + (7) (10)$
 $= 15 + 70$
 $= 85m$
Total distance correaded by Rumer $B = \int_{0}^{10} v(t) dt$
 $= \int_{0}^{10} \frac{24t}{2t+3} dt$
 $= 83.3m$



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