

$$581 - 14 \sin N$$



$$20x^2 + 20M + x^2 + Mx = 45x$$

$$x^2 + (M - 25)x + 20M = 0$$

$$x = \frac{25 - M \pm \sqrt{M^2 - 52M + 625 - 80M}}{2}$$

$$x_{1,2} = \frac{25 - M \pm \sqrt{M^2 - 30M - 625}}{2}$$

$$\sqrt{M^2 - 130M + 625} < 11 / c$$

$$M^2 - 130M + 625 <$$

$$M^2 - 130M + 5804 \approx 0$$

$$120 < M < 125$$

$$114 < M < 125$$

$$\begin{aligned} 3 &= 11 \\ 8 &= 8 \end{aligned}$$

$$\begin{aligned} C_1 &= 4.11 \\ C_2 &= 0.85 \text{ m} \\ C_3 &= 0.55 \\ C_4 &= 0.11 \\ C_5 &= 0.05 \\ C_6 &= 0.01 \\ C_7 &= 0.005 \\ C_8 &= 0.001 \\ C_9 &= 0.0005 \\ C_{10} &= 0.0001 \end{aligned}$$

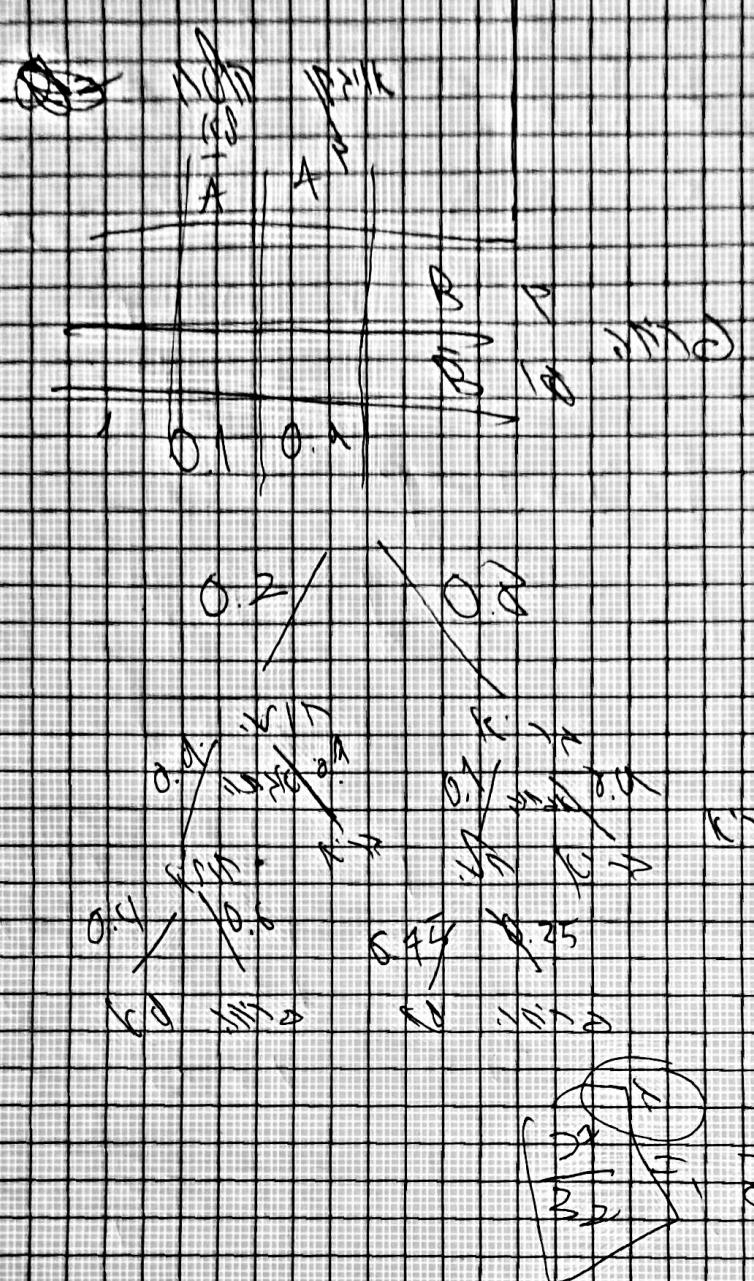
~~Mr. S. J. D.~~

842m

1000 1000 1000

38N 35°N

10%



0.2:0.9:0.6
0.8:0.1:0.2:0.5:0.2:0.1:0.5

(class + 3)

$$W_0 = 1.37 \times 10^6$$

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Water with $1.37 \times 10^6 \text{ J} = 30^\circ$

(class in next class)

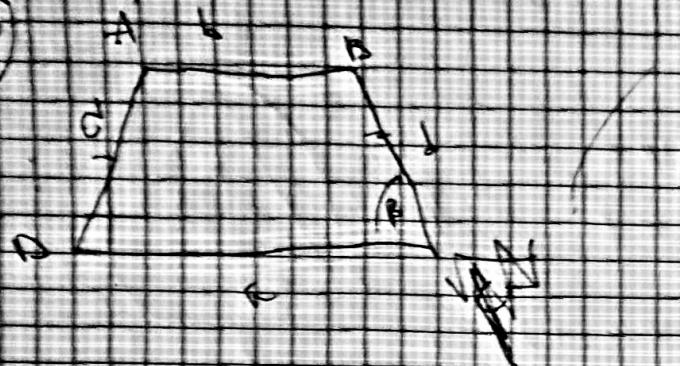
$$W_0 = 1.37 \times 10^6 \text{ J} = 30^\circ$$

Water with $1.37 \times 10^6 \text{ J} = 30^\circ$

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Water with $1.37 \times 10^6 \text{ J} = 30^\circ$

Water with $1.37 \times 10^6 \text{ J} = 30^\circ$



~~FOR A - F IN~~

$$BD^2 = b^2 - 2ab \cos(\alpha + \beta)$$

$$BD^2 = b^2 - 2ab \cos \beta$$

$$\frac{BD^2}{b^2} = \frac{b^2 - 2ab \cos \beta}{b^2}$$

$$\frac{BD^2}{b^2} = \frac{(1-\cos \beta)(b-a)}{b-a}$$

$$BD^2 = (1-\cos \beta)(b-a)$$

$$\frac{a+b}{2}, \frac{b-a}{2}$$

$$BD^2 = \left(\frac{a+b}{2}\right)^2 - \left(\frac{b-a}{2}\right)^2$$

$$BD^2 = \frac{(a+b)^2}{4} - \frac{(b-a)^2}{4}$$

$$BD^2 = a^2 + ab$$

$$BD = \sqrt{ab + a^2}$$

$$DE^2 = \left(\frac{a-b}{2}\right)^2 - \left(\frac{b-a}{2}\right)^2$$

$$DE^2 = \frac{a^2 - 2ab + b^2}{4} - \frac{b^2 - 2ab + a^2}{4}$$

$$\frac{\sin \alpha}{\sin \beta} = \frac{d}{b}$$

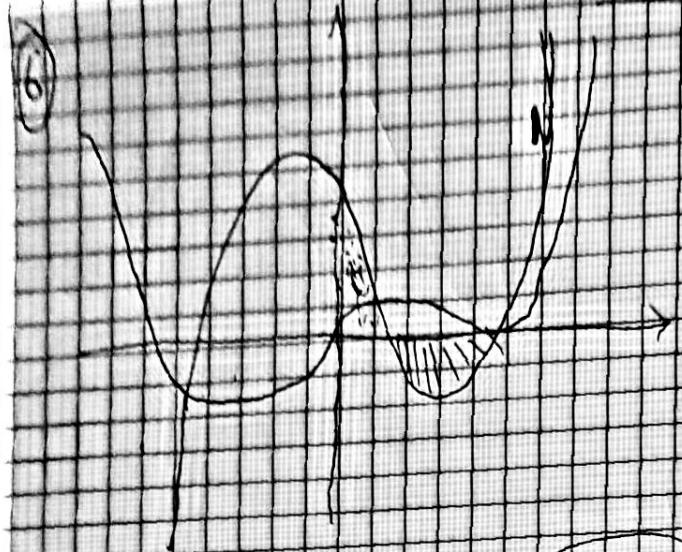
$$\frac{1}{2} \left(ab - \frac{a^2 - b^2}{2} \right)$$

$$= \frac{a^2 - b^2}{2}$$

$$\frac{\sin \alpha}{\sin (\alpha + \beta)} = \frac{d}{b}$$

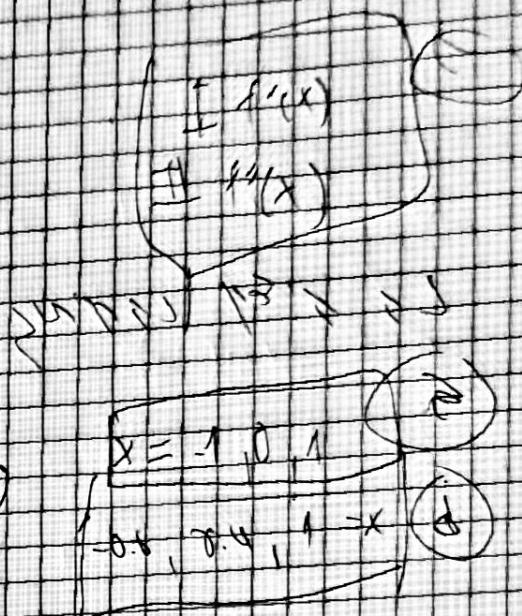
$$\sin (\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$$

81 - ① 3/11



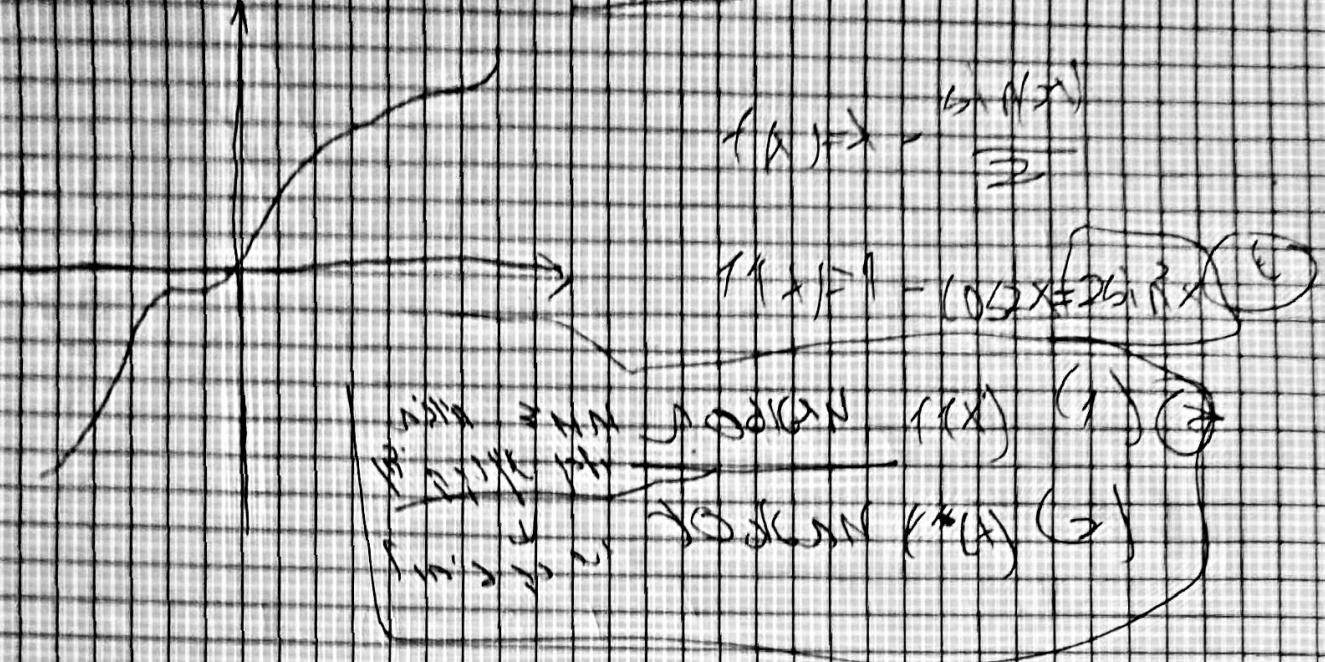
$$S_1 = f(0.0) - f'(0) = f'(0+)$$

$$S_{1,1} = f(0.4) - f'(0) = f'(0+)$$



$$\begin{array}{|c|} \hline x = -1, 0, 1 \\ \hline -0.8, -0.4, 0, 0.4, 1 \rightarrow x \\ \hline \end{array}$$

381- ① 381

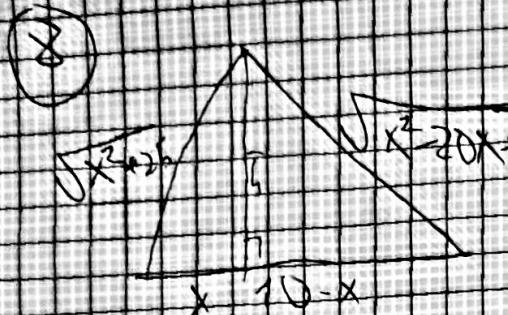


$$G_1, G_2, x \geq 1 \\ G_1 = 1 + b \sqrt{2x}$$

$$5x^2 - 10x = 0 \\ x = 2, 0$$

$$S = \int_{0}^{2} (G_2 - G_1) dx = \int_{0}^{2} (\sqrt{2x} - 1 - b\sqrt{2x}) dx = \frac{2}{3}x^{3/2} - x - bx\sqrt{2x} \Big|_0^2 = \frac{8}{3} - 2 - 4b \Rightarrow b = \frac{1}{3}$$

581 D 381 N



13
3

$$\frac{5\sqrt{5}}{2} \quad \frac{5\sqrt{3}}{2}$$

$$x^2(10-x)^2 - 25(10-x)^2 = 25x^2 - 25(10-x)^2$$

$$10-x = x$$

$$(x-10)^2 = x^2 - 20x + 125$$
$$(x-10)^2 - x^2 + 20x - 125 = 0$$
$$20x - 125 = \sqrt{x^2 - 20x + 125}$$

$$x^2 - 20x + 125 = (10-x)(x+5)$$
$$x^2 - 20x + 125 = 100x + x^2 - 20x + 50$$
$$100 = x^2 - 20x$$

$$x^2 - 20x + 100 = 0$$
$$x = \frac{20}{2} = 10$$

$$\therefore \sqrt{50}, \sqrt{5}, 10$$

$$10 \text{ cm} \quad 5 \text{ cm}$$

~~285~~ ~~286~~ ~~287~~ ~~288~~ ~~289~~ ~~290~~

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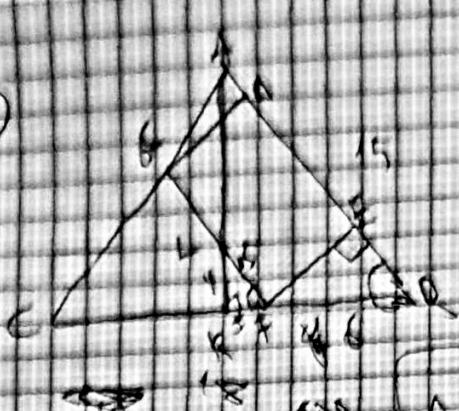
~~489~~ ~~490~~ ~~491~~ ~~492~~ ~~493~~ ~~494~~

~~495~~ ~~496~~ ~~497~~ ~~498~~ ~~499~~ ~~500~~

Fig. 33

11
101. \rightarrow (c)

22. $\frac{10}{24}$. 21. $\frac{20}{34}$. 20. $\frac{10}{22}$. (c)



Ques 58/1

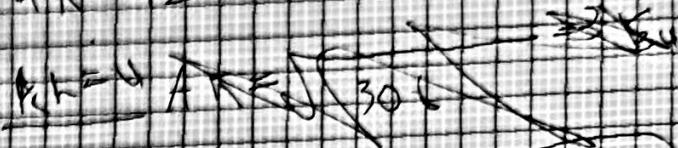
$\sin A = \frac{1}{2}$

$\sin 30^\circ = \frac{1}{2}$

Diagram of a right-angled triangle ABC with the right angle at vertex C.

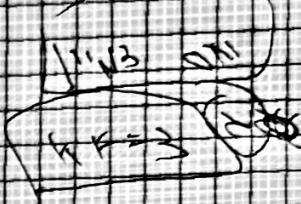
$$\sin A = \frac{1}{2} \Rightarrow A = 30^\circ$$

$$AC = 12$$

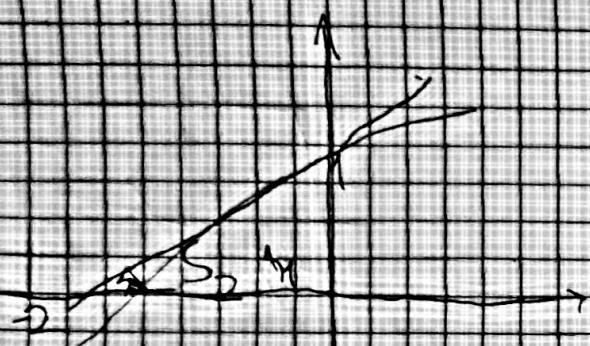


$$\cos A = \frac{1}{2} \Rightarrow A = 60^\circ$$

$$AC = 8$$



$$57.6 = 48 \text{ feet}$$



$$f(x) = -\frac{\cos x}{\sqrt{1 - \sin x}}$$

$$\frac{\pi}{2} < x < \frac{\pi}{3}$$

~~(0, 1)~~

$$f'(x) = \frac{\sin x \sqrt{1 - \sin x} - (\cos x)(-\cos x)}{(1 - \sin x)^2}$$

$$\begin{aligned} f' = & \frac{(\cos x)(1 - \sin x)^{-1/2}}{1 - \sin x} \\ & - \frac{(\sin x)(2(1 - \sin x)^{-1/2})(-\cos x)}{(1 - \sin x)^2} \end{aligned}$$

$$f'(x) = \frac{2\cos^2 x + (\sin^2 x - 2\sin x)}{(1 - \sin x)^{3/2}}$$

$$f''(x) = \frac{2\cos^2 x + (2\sin x)(-\cos x)}{(1 - \sin x)^{5/2}}$$

$$b_1 = 2\sin x$$

$$1 + 2\sin^2 x = \frac{1}{2} \quad \text{at } x = \frac{\pi}{3}$$

$$y = \frac{1}{2}x + 1$$

$\ell = 4$

M_A

M_A

$\ell = 4$

$\ell = 4 - 3A + 3$

$\ell = 0 + 2 + 1$

$A + B - C$

$D + E$

$\ell = 3 + 6 - 3 + 3$

$\ell = 6 - 3 + 2$

$f_{1b}(\rho)$

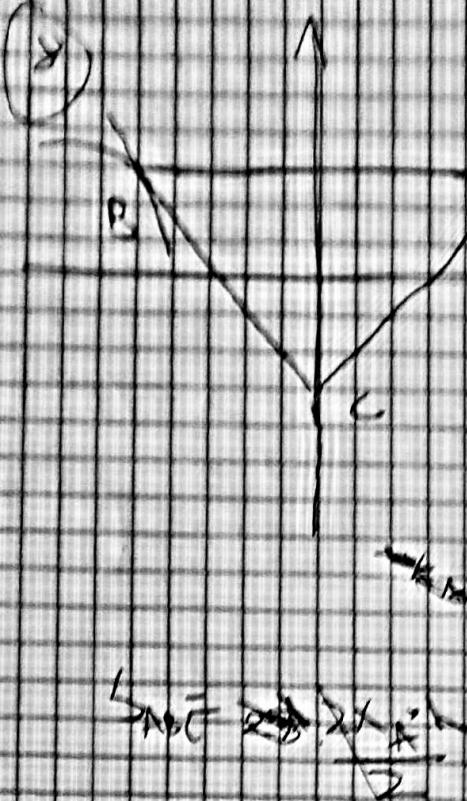
$\ell = 2 - 3 + 1 + 2 + 1 - 3$

ℓ

$f_{1b}(\rho)$

$x > b$

ℓ



$$AC: y = \sqrt{3x^2 - 24}$$

$$x^2 = \frac{y^2}{3} + 8$$

$$h = y_A - y_C$$

$$S_{\text{ABC}} = \frac{x_A^2}{\sqrt{3x_A^2 - 24}}$$

$$y_A = \sqrt{3x_A^2 - 24}$$

$$S(x) = \frac{3x^2 \sqrt{3x^2 - 24} - \frac{3}{2}x^3}{\sqrt{3x^2 - 24}}$$

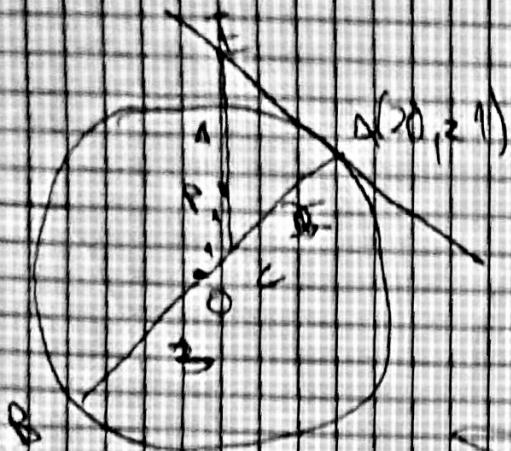
$$AC: y = \sqrt{3x^2 - 24} = \frac{x_A(x - x_A)}{\sqrt{3x_A^2 - 24}}$$

$$y = \sqrt{3x^2 - 24} - \frac{x_A^2}{\sqrt{3x_A^2 - 24}}$$

$$h = \frac{x_A^2}{\sqrt{3x_A^2 - 24}}$$

$$S'(x) = \frac{\frac{3x^2}{\sqrt{3x^2 - 24}} - \frac{3x^2 - 24}{2} \cdot \frac{6x}{\sqrt{3x^2 - 24}}}{(\sqrt{3x^2 - 24})^2} \rightarrow$$

$$\begin{cases} x = 4 \\ S(4) = \frac{121}{\sqrt{12}} = 25\sqrt{3} \end{cases}$$

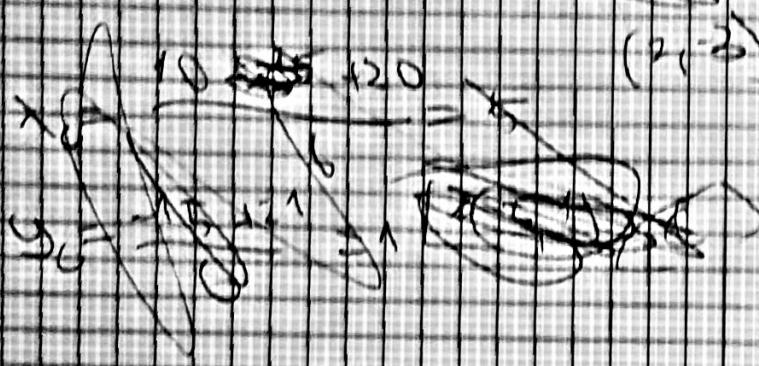


$\text{PQ} \perp \text{dashed line}$

$$Q(0, 2)$$

$$x^2 + y^2 - 4x + 6y + 8 = 0$$

$$(x - 2)^2 + (y + 3)^2 = 25 + 9 = 34$$



$$(2, 3) \text{ is a center}$$

$$x = 2 + 20 = 8$$

$$y = \frac{-6 + 2}{2} = -2$$

$$M_{AD} = \frac{71 - 3}{20 - 2} = \frac{14}{18}$$

$$M_{AE} = \frac{3}{4}$$

$$AE \rightarrow 1 = \frac{3}{4} (x \geq 0)$$

$$C \rightarrow \frac{3}{4} x + 3.6$$

$$5y_0 - 8 = \frac{-15x_0}{4} + 12 \times 3.6$$

$$5y_0 + \frac{15x_0}{4} = 80$$

$$5y_0 + 3x_0 = 64$$

$$P(x_p, y_p)$$

$$x_p = \frac{32 - 12}{5} = 4$$

$$y_p = \frac{20 - 6}{5} = 2.8$$

$$5x_p - 3y_p + 12 = 0$$

$$5 \cdot 4 - 3 \cdot 2.8 + 12 = 20 - 8.4 + 12 = 23.6$$

$$\therefore (x_p, y_p) = (4, 2.8)$$

5.2.1.3. an

$$④ 0.9 \cdot 1 - \frac{0.1}{100} = 0.900$$

→ M 3 + 14 (x)

$$0.900^3 = 0.900^t$$

$t \rightarrow t$

$$115000 = 10000 \cdot e^{0.1t}$$

$$\begin{aligned} 1.15 &= e^{0.1} \\ \sqrt{1.15} &= e^{0.1} \end{aligned}$$

(0.1)

$$f'(x) = \frac{1}{(2x-1)^2} + e$$

$$f(x) = \begin{cases} f(x) \quad x = \frac{-1}{2(2x-1)} \\ e^x + C \end{cases}$$

$$f'(0) = 0 \Rightarrow \frac{1}{2} + 0 + C$$

$$C = \frac{1}{2}$$

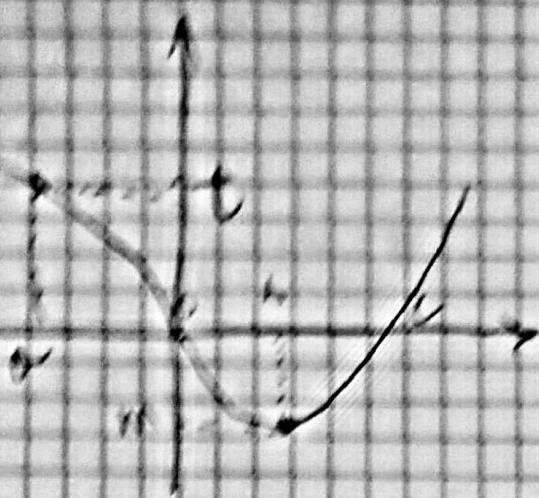
$$f(x) = \begin{cases} f(x) \quad x = -\frac{1}{2(2x-1)} + \frac{e^x}{2} + \frac{x}{2} + C \end{cases}$$

$$f(0) = 2 = 0 + \cancel{\frac{1}{2}} + \cancel{\frac{3}{2}} + 0 + 0 + C$$

$$\cancel{\frac{3}{2}} = 0$$

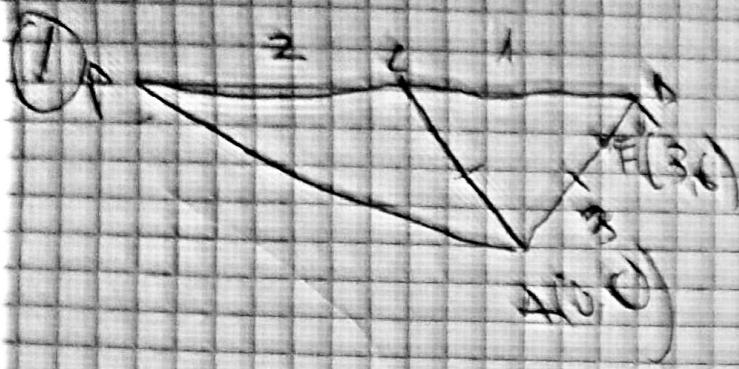
$$f(x) = \frac{-1(2x-1)}{2} + e^x - \frac{x}{2} + C$$

Oct 10, 1962



$f(t) = e^{-t}$
and
 $(1, e^{-1})$

$$\{ f(t) = e^{-t} \text{ and } -e^{-t} \} = -e^{-t} + C$$



$$P_G = I^2 R_C \quad P(x_1, y_1)$$

$$3 = \frac{3x_1 + 0}{\sqrt{13}} \quad \cancel{x_1 = 3}$$

$$6 = \frac{3y_1 + 0}{\sqrt{13}} \quad \cancel{y_1 = 4} \\ 4 = \frac{3y_1 + 0}{\sqrt{13}} \quad \cancel{y_1 = 4} \\ 8(4) = 32$$

$$x_1 = \frac{x_0 + 8}{3}$$

$$y_1 = \frac{y_0 + 4}{3}$$

$$\sqrt{50} = \sqrt{9^2 + 2^2 + 12^2 + 1^2 + 6^2 + 6^2}$$

$$12\sqrt{5} = \sqrt{(9+1)^2 + (-1)^2}$$

$$120 = (144)^2 + (9+1)^2$$

$$\sqrt{4} = 2$$

$$\sqrt{4} = 2$$

$$\begin{array}{|c|} \hline 4 & 2 \\ \hline \end{array}$$

~~cancel~~

~~cancel~~

~~cancel~~

$$x_1 + y_1 - 2 + z_1 - 3 = 0$$

$$B(1, -2, 1)$$

$$A(1, 2, 1)$$

$$B(t) \rightarrow (1+2t, t+2, 2-t)$$

$$\sqrt{r_0} = \sqrt{4t^2 + 4t + 1 + t^2 + 4t + 2}$$

$$2 - 2 - m + 3 = 0$$

$$0 = \sqrt{t^2 + 98}$$

$$t^2 = 15.5$$

$$m = 3$$

$$-2 - 2 - k + 3 = 0$$

$$k = -1$$

$$\sqrt{r_0} = \sqrt{4t^2 + t^2 + 1^2}$$

$$r_0 = t^2$$

$$z_4 = t$$

$$G = \{9, 2, 1\}$$

$$E(1, 6, 12)$$

$$G^{\text{cyclic}} = \{0, 1, 4, 7, 10\}$$

$$G^{\text{cyclic}} = \{9, 2, 1, 10, 11, 12, 13, 14, 15, 16, 17, 18\}$$

$$16 - 3 = 13$$

$$16 - 4 = 12$$

$$16 - 1 = 15$$

$$AF$$

$$180 + 12 - 24 + 18 + 3 = 0$$

$$r = 5$$

$$F(3, -2, 15)$$

$$T = \{2, 0, 4\}$$

$$T = \{2, 0, 6\}$$

$$T = \{2, 0, 8\}$$

$$T = \{2, 0, 10\}$$

$$T = \{2, 0, 12\}$$

$$T = \{2, 0, 14\}$$

$$T = \{2, 0, 16\}$$

$$T = \{2, 0, 18\}$$

$$T = \{2, 0, 20\}$$

$$T = \{2, 0, 22\}$$

$$X = (90, 30, 30, 1, 85)$$

(7) $\sin \sim R_2$

$$2 = a_{r_1}$$

$$4 = a_{r_2}$$

$$a_{r_1} \cos x = a_{r_2}$$

$$\sqrt{2} - 4 \cdot 0.877 = \frac{2}{\sqrt{2}}$$

$$1.0837 = 2$$

$$10 = 8 + 300$$

≈ 315



$$\frac{e}{e} x - 8 = e - x$$

$$ex - \frac{8x^2}{e} - 8e + 8 = e$$

$$2e = x$$

$$0 = 4e^2 - 8ex + 8x^2$$

$$x = \frac{2}{e}, \frac{4}{e}$$

$$(1.5e, -2)$$

5N3 65

$$\int \left(\frac{4}{e} x - 8 - \left(\frac{e}{e-x} \right) \right) dx$$

1.5e

$$= \left[\frac{2}{e} x^2 - 8x + e \ln(e-x) \right]$$

$$= 0.555$$

$$f(x) = \frac{e}{e-x}$$

$$y = \frac{e}{e-x} - 8$$

$$f'(x) = \frac{e}{(e-x)^2} = \frac{e}{e}$$

$$f'(x) = \frac{e}{(e-x)^2} \quad f'(x) = \frac{e}{e}$$

$$x = 0.5e$$

$$x = 1.5e$$

582 - ②

$$= h^x - 1$$

x

$$f(x) = \int (h^x - 1) dx = \frac{h^x - 1}{\ln h} + C$$

$$\underline{f(0) = 2 - 2h^0 + 1} \quad \circ$$

x

$$3 \rightarrow h^x$$

$$\frac{3}{2} = h^x$$

$$\underline{\frac{3}{2} = h^x}$$

$$1+C=b$$

$$\boxed{C=b-1}$$

$$f(0) = h^0 - h^x - \frac{3}{4} + b \quad \circ$$

$$3-15=0$$

$$x=\overline{3}$$

$$(32 \pm 1)$$

$$h^0 - h^x = \frac{1 \pm \sqrt{1+3-4b}}{2} = \frac{1+3-4b}{2}$$

$$\begin{cases} b > 1 \\ b < 1 \end{cases}$$

$$\begin{aligned} & 32 - 15 = 17 \\ & 32 - 15 = 17 : 1 \end{aligned}$$

$$b > 1, C'$$

