

اسئلة هامة ومتنوعة على طرق التكامل

الأستاذ: أحمد موسى مقدادي
هاتف ٠٧٨٥٥٣٦٢٦٦

جد التكاملات الآتية :

١	$\int (\text{قتاس} - \text{ظتاس})^2 \text{ دس}$	٢	$\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} \frac{x^2 - 1}{x^2} dx$
٣	$\int \text{قا}^2 \text{س} \text{ظا}^2 \text{س} \cdot \text{دس}$	٤	$\int \text{جا} \text{س} \text{جتا}^3 \text{س} \cdot \text{دس}$
٥	$\int \text{قاس} \text{لو} (\text{قاس} + \text{ظاس}) \text{ دس}$	٦	$\int_{-1}^0 \frac{\sqrt{x^2 + 2x + 2}}{(x+2)^2} dx$
٧	$\int \frac{\sqrt{\text{ظاس}}}{\text{جتاس}} \text{ دس}$	٨	$\int \frac{x^2 - 2}{x^2 + 9x - 6} \text{ دس}$
٩	$\int \frac{\text{لو} (\text{س}^2 - 2\text{س} - 5)}{(x-2)^2} \text{ دس}$	١٠	$\int \text{جا}^2 \text{س} \text{ظاس} \text{ دس}$
١١	$\int \text{س}^6 \sqrt{\text{س}^2 + 9} \text{ دس}$	١٢	$\int \frac{x^2}{\sqrt{x^3 - 9x^2 - 3x + 2}} \text{ دس}$
١٣	$\int \frac{\sqrt{9 + x^2}}{x} \text{ دس}$	١٤	$\int \frac{x^3}{(x^2 + 1)(x^2 - 4)} \text{ دس}$
١٥	$\int \frac{\text{جا} (\text{لو} \text{س})}{\text{س} (\text{جتا} (\text{لو} \text{س}) - 9)} \text{ دس}$	١٦	$\int \text{س}^4 (\text{س}^2 + 9) \text{ دس}$
١٧	$\int (\text{قاس} + \text{جتاس})^2 \text{ دس}$	١٨	$\int \frac{\text{س} \cdot \text{جتاس}}{\text{قا}^2 \text{س}} \text{ دس}$
١٩	$\int \text{ظا}^2 \text{س} \text{ دس}$	٢٠	$\int \frac{x^4 + 3\text{لو} \text{س}}{x^2} \text{ دس}$

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٢١	$\int \frac{x^3 \sqrt{x}}{x^2 + 1} dx$	٢٢	$\int \frac{x^2 \sqrt{x}}{(1+x^2)^2} dx$
٢٣	$\int \frac{\pi}{\sqrt{x}} - \frac{\pi}{\sqrt{x^3}} dx$	٢٤	$\int \frac{x^3}{x^2 - 2x + 1} dx$
٢٥	$\int x^2 + x - x^2 dx$	٢٦	$\int \frac{q^2}{q^2 - 4x^2 + 4} dx$
٢٧	$\int \frac{x}{x^2 - 2x} dx$	٢٨	$\int \frac{1}{x^2 + 1 + x^2} dx$
٢٩	$\int \frac{2 \log x}{1 + x^2} dx$	٣٠	$\int \frac{x^2 + 5}{x^2 - 5x - 3} dx$
٣١	$\int \frac{1}{x^2 - 1 + \sqrt{x^2 + 1}} dx$	٣٢	$\int \frac{1}{x^2 + x^2 + 1} dx$
٣٣	$\int x(x^2 + 1) dx$	٣٤	$\int \frac{x^2 \sqrt{x}}{(1+x)^2} dx$
٣٥	$\int \frac{2}{\sqrt{x^3 + 3x^2 + 2x}} dx$	٣٦	$\int \frac{1}{x^2 (1 + \sqrt{x})} dx$
٣٧	$\int \frac{1}{x^2} dx$	٣٨	$\int \frac{1}{x(x^2 - 9)} dx$
٣٩	$\int \frac{\log(x)}{x} dx$	٤٠	$\int \frac{1}{x(x^2 + 1)} dx$
٤١	$\int \frac{\log(x)}{x^2 + 1} dx$	٤٢	$\int \frac{1 + \sqrt{1+x^2}}{1 - \sqrt{1+x^2}} dx$

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الاستاذ: احمد موسى مقدادي
هاتف: ٠٧٨٥٥٣٦٢٦٦

٤٣	$\int \frac{(1-s)^{\sqrt{e}}}{s} ds$	٤٤	$\int \frac{ظتاس لوم جاس}{ds}$
٤٥	$\int \frac{s + جاس}{1 + جتاس} ds$	٤٦	$\int \frac{1}{ds + 1} ds$
٤٧	$\int جاس (لوجاس) ds$	٤٨	$\int \frac{قاس}{قاس - 10} ds$
٤٩	$\int \frac{\pi}{4} قاس \sqrt{1 + جتاس} ds$	٥٠	$\int جاس جاس ds$
٥١	$\int \frac{\sqrt{1+s}}{2-s} ds$	٥٢	$\int \frac{جاس}{جاس + جاس} ds$
٥٣	$\int \frac{3}{3-s-14} ds$	٥٤	$\int (6s^7 - 7s^6) (3s - 1) ds$
٥٥	$\int \frac{1}{1-قاس} ds$	٥٦	$\int \frac{1}{3} [5 + s + ds]$
٥٧	$\int \frac{1 + 3s}{س + 5 + 7} ds$	٥٨	$\int \frac{ظتاس}{4 - (لوم جتاس)} ds$
٥٩	$\int جتاس ه لوجاس ds$	٦٠	$\int \frac{3}{س (لوم + 2 (لوم))} ds$
٦١	$\int \frac{\pi}{8} \frac{جاس}{قاس} ds$	٦٢	$\int \frac{1}{(2جاس + جتاس)} ds$
٦٣	$\int \frac{1}{(1+s)^3} ds$	٦٤	$\int \frac{1}{س (3س - 4)} ds$

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هاتف: ٠٧٨٥٥٣٦٢٦٦

٦٥	$\left[\frac{\text{ظا}^2 \text{س}}{(1 + \text{جتا}^2 \text{س})^2} \text{دس} \right]$	٦٦	$\left[\text{ه}^2 \text{جتا}^2 (\text{ه}^2) \text{دس} \right]$
٦٧	$\left[\frac{\text{جتا}^2 \text{س}}{\text{س} \text{جا}^2 \text{س}} \text{دس} \right]$	٦٨	$\left[\text{س} \text{جا}^2 \text{س} \text{جتا}^2 \text{س} \text{دس} \right]$
٦٩	$\left[\frac{\text{س} + \text{ظا}^2 \text{س}}{\text{س} + \text{ظا}^2 \text{س}} \text{دس} \right]$	٧٠	$\left[\frac{1}{\text{س} \text{جتا}^2 \text{س} - \text{جا}^2 \text{س}} \text{دس} \right]$
٧١	$\left[\frac{\text{لوه}^2 (\text{س}^2 - \text{س} - \text{ه}^2 - \text{س} - \text{ه}^2)}{(\text{س} - \text{س})^2} \text{دس} \right]$	٧٢	$\left[\text{جا}^2 \text{س} \text{قا}^2 \text{س} \text{دس} \right]$
٧٣	$\left[\frac{\text{س}^2 - \text{س} - \text{س}^2}{\text{س}^2} \text{دس} \right]$	٧٤	$\left[\text{لوه}^2 (\text{س} + \text{س}) \text{دس} \right]$
٧٥	$\left[\frac{1 + \text{جتا}^2 \text{س}}{1 + \text{جا}^2 \text{س}} \text{دس} \right]$	٧٦	$\left[\frac{\text{س}^2 - \text{س}^2 + \text{س}^2}{\text{س}^2 + \text{س}^2 + \text{س}^2} \text{دس} \right]$
٧٧	$\left[\text{جتا}^2 \text{س} (\text{جا}^2 \text{س} + \text{جتا}^2 \text{س}) \text{دس} \right]$	٧٨	$\left[\frac{1}{\text{س} + \text{س}^2} \text{دس} \right]$
٧٩	$\left[\frac{\text{لوه}^2 \text{س}^2}{\text{س}^2 - \text{س}^2 + \text{س}^2} \text{دس} \right]$	٨٠	$\left[\frac{\text{س}}{\text{س}^2 + \text{س}^2 - \text{س}^2 + \text{س}^2} \text{دس} \right]$
٨١	$\left[\frac{\text{س}^2 \text{س}^2 + \text{س}^2}{1 + \text{س}^2 - 1} \text{دس} \right]$	٨٢	$\left[\frac{\text{جا}^2 \text{س}}{1 + \text{جا}^2 \text{س}} \text{دس} \right]$
٨٣	$\left[\frac{\text{س}^2 + \text{س}^2 - \text{س}^2}{\text{س}^2 - \text{س}^2} \text{دس} \right]$	٨٤	$\left[\text{جا} (\text{لوه}^2 \text{س}) \text{دس} \right]$
٨٥	$\left[\frac{\text{قا}^2 \text{س}}{\text{قا}^2 \text{س} + \text{ظا}^2 \text{س}} \text{دس} \right]$	٨٦	$\left[\frac{1 + \text{ه}^2}{\text{ه}^2 - 1} \text{دس} \right]$

٨٧	$\int \text{جاس} \left(\sqrt[3]{\frac{\text{ظا}}{\text{ع}}} - \sqrt[3]{\frac{\text{ظا}}{\text{ع}}} \right) \text{دس}$	٨٨	$\int \sqrt[3]{\text{س} - \sqrt[3]{\text{س}^2 - ٤}} \text{دس}$
٨٩	$\int \frac{\text{س} (\text{س} + ٥)}{\sqrt[3]{٢٥ + \text{س} + \text{س}^2 + \text{س}^3}} \text{دس}$	٩٠	$\int \frac{\sqrt[3]{\text{س} + \text{س}^3}}{\text{س}} \text{دس}$
٩١	$\int \frac{١ - \text{جاس} \text{س}}{\text{جاس} \text{س} - \text{جاس} \text{س}} \text{دس}$	٩٢	$\int \frac{[٢ - \text{س}] + \text{س}^٢}{ ١ - \text{س}^٢ } \text{دس}$
٩٣	$\int \frac{\text{س} (\sqrt[3]{\text{س}} + \sqrt[3]{\text{س}^٢})}{\text{س}^٢} \text{دس}$	٩٤	$\int \frac{\sqrt[3]{٩ + \text{س}^٢ + \text{س}^٤}}{\text{س}^٢ - \text{س}} \text{دس}$
٩٥	$\int \frac{\text{جاس} \text{س} - \text{جاس} \text{س}}{\text{جاس} \text{س} - \text{جاس} \text{س} - ٢} \text{دس}$	٩٦	$\int \frac{\text{جاس} \text{س}}{\text{س}^٣ (\text{جاس} \text{س} - \text{جاس} \text{س})} \text{دس}$
٩٧	$\int \frac{٢ \text{جاس} \text{س}}{١ - \text{جاس} \text{س}} \text{دس}$	٩٨	$\int \frac{\text{س} \sqrt[3]{\text{س}^٢}}{٩ + \text{س}^٢ + \text{س} + ١} \text{دس}$
٩٩	$\int \frac{٢ \text{جاس} \text{س}^٣ - \text{جاس} \text{س}}{\text{جاس} \text{س}^٣ - \text{جاس} \text{س}} \text{دس}$	١٠٠	$\int \frac{١}{\text{س}^٣ - \text{س}} \text{دس}$

كل الامنيات بالتوفيق للجميع

الاستاذ أحمد موسى مقدادي

٠٧٨٥٥٣٦٢٦٦

الاستاذ: أحمد موسى مقدادي
هاتف ٠٧٨٥٥٣٦٢٦٦

$$1 \quad \left[\text{قناص} - \text{ظناص} \right] \text{قناص}$$

$$= \left[\text{قناص} - \text{قناص} \text{ظناص} + \text{ظناص} \text{قناص} \right] \text{قناص}$$

$$= \left[\text{قناص} - \text{قناص} \text{ظناص} + \text{قناص} (1 - \text{قناص}) \right] \text{قناص}$$

$$= - \text{قناص} \text{ظناص} + \text{قناص} \text{قناص} - \text{قناص} + \text{قناص}$$

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$$2 \quad \left[\frac{\pi}{3} \right] \frac{\pi}{3} = \frac{\pi}{3}$$

$$= \frac{\pi}{3} \left[\frac{\pi}{3} \right] = \frac{\pi}{3}$$

$$= \frac{\pi}{3} \left[\frac{\pi}{3} \right] = \frac{\pi}{3}$$

$$= \frac{\pi}{3} \left[\frac{\pi}{3} \right] = \frac{\pi}{3}$$

$$= \left[\text{قناص} + \text{قناص} \text{ظناص} \right] \frac{\pi}{3} = \frac{\pi}{3}$$

$$= \frac{\pi}{3} \left[\text{قناص} + \text{ظناص} \right] = \frac{\pi}{3}$$

$$= (1 + \pi) - (\pi + 1) =$$

$$= 1 + \pi - \pi =$$

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$$3 \quad \left[\text{قناص} \text{ظناص} \text{قناص} \right]$$

$$\text{قناص} = \text{قناص}$$

$$\frac{\text{قناص}}{\text{قناص}} = \text{قناص}$$

$$= \left[\frac{\text{قناص}}{\text{قناص}} \text{ظناص} \text{قناص} \right] = \frac{\text{قناص}}{\text{قناص}}$$

$$= \frac{1}{\pi} \left[\text{قناص} (1 - \text{قناص}) \right] \text{قناص}$$

$$= \frac{1}{\pi} \left[\text{قناص} (1 - \text{قناص}) \right] \text{قناص}$$

$$= \frac{1}{\pi} \left[\text{قناص} (\text{قناص} - \text{قناص}) \right] \text{قناص}$$

$$= \frac{1}{\pi} \left[\frac{\text{قناص}}{\pi} - \frac{0}{0} \right] \text{قناص}$$

$$= \frac{1}{\pi} \left[\frac{\text{قناص}}{\pi} - \frac{\text{قناص}}{0} \right] \text{قناص}$$

$$4 \quad \left[\text{قناص} \text{ظناص} \text{قناص} \right]$$

$$\text{قناص} = \text{قناص}$$

$$\text{قناص} = \text{قناص}$$

$$\text{قناص} \text{قناص} = \text{قناص}$$

$$= \left[\text{قناص} \text{ظناص} \text{قناص} \text{قناص} \right] = \text{قناص}$$

$$\text{قناص} \text{قناص} \text{قناص} = \text{قناص}$$

$$\text{قناص} = \text{قناص}$$

$$= \frac{\text{قناص}}{\pi} - \text{قناص} = \text{قناص}$$

يتبع

$$\frac{u \cdot s}{\sqrt{c^2 + u^2}} =$$

$$0 + \frac{u \cdot s}{c} =$$

$$0 + \left((u \cdot \hat{c} + u \cdot \hat{s}) \right) \frac{1}{c} =$$

$$u \cdot s \frac{\sqrt{c^2 + u^2 + u^2}}{(c + u)} \Big|_1 =$$

$$u \cdot s \frac{\sqrt{c^2 + u^2}}{(c + u)} \Big|_1 =$$

$$u \cdot s \frac{|c + u|}{(c + u)} \Big|_1 =$$

$$\frac{++++}{c}$$

$$u \cdot s \frac{c + u}{(c + u)} \Big|_1 =$$

$$\Big|_1 |c + u| =$$

$$\frac{1}{c} - \frac{1}{c} =$$

$$\frac{1}{c} =$$

الأستاذ: أحمد موسى عتيدي
هاتف ٠٧٨٥٥٦٢٢٦٦

Σ ع ل

$$u \cdot s \frac{1}{c} \Big|_1 + \frac{u \cdot s}{c} =$$

$$u \cdot s \left(\frac{1}{c} \right) \Big|_1 + \frac{u \cdot s}{c} =$$

$$u \cdot s \left(\frac{1}{c} \right) \Big|_1 +$$

$$u \cdot s \left(\frac{1}{c} \right) \Big|_1 +$$

$$u \cdot s \left(\frac{1}{c} \right) \Big|_1 +$$

$$u \cdot s \left(\frac{1}{c} \right) \Big|_1 +$$

$$u \cdot s \frac{1}{c} + u \cdot s \frac{1}{c} + u \cdot s \frac{1}{c} + u \cdot s \frac{1}{c} =$$

$$\frac{u \cdot s}{c} + \frac{u \cdot s}{c} + \frac{u \cdot s}{c} =$$

$$0 + \frac{u \cdot s}{c} +$$

$$u \cdot s \left(\frac{1}{c} \right) \Big|_1 =$$

$$u \cdot s = (u \cdot \hat{c} + u \cdot \hat{s})$$

$$u \cdot s = \frac{u \cdot \hat{c} + u \cdot \hat{s}}{c}$$

$$u \cdot s = \frac{(u \cdot \hat{c} + u \cdot \hat{s})}{c}$$

$$\frac{u \cdot s}{c} = u \cdot s$$

$$\boxed{7} \quad \left\{ \frac{\text{اظلام}}{\text{ظلم}} \right\}$$

$$u = \text{ظلم}$$

$$u = \text{ظلم}$$

$$\frac{usur}{\text{قاس}}$$

$$\frac{usur}{\text{قاس}} \times \frac{u}{\text{ظلم}} =$$

$$\frac{usur}{u} \frac{u}{\text{ظلم}} =$$

$$u + u - u =$$

$$u + \frac{u}{\text{ظلم}} - \frac{u}{\text{ظلم}} =$$

$$\boxed{11} \quad \left\{ \frac{u - u}{(u - u)} \right\}$$

$$\frac{u}{(u - u)} \frac{(u - u)}{u} =$$

$$u(u - u) = us \quad u - u = 0$$

$$\frac{1}{u - u} = 0 \rightarrow us = us$$

$$us \frac{1}{u - u} + \frac{(u - u)}{u - u} =$$

$$u + \frac{(u - u)}{u - u} =$$

* يمكن حل السؤال على التحويلات

الأستاذ: أحمد موسى قناني
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$$\boxed{9} \quad \left\{ \frac{u(u - u)(u + 1)}{u - u} \right\}$$

$$= \frac{u(u - u) + (u - u)(u + 1)}{u - u}$$

$$u(u - u)(u - u) =$$

$$u(u - u)(u - u) +$$

الجزء

$$us \frac{1}{(u - u)(u - u)} + \frac{(u - u)(u - u)}{u - u} =$$

$$us \frac{1}{(u + 1)(u - u)} + \frac{(u + 1)(u - u)}{u - u} =$$

$$\frac{1}{u - u}$$

سور، جزئية

$$\boxed{1.} \quad \left\{ \frac{u}{u} \frac{u}{u} \right\}$$

$$us \frac{u}{u} \times \frac{u}{u} =$$

$$us \frac{u}{u} \frac{u}{u} =$$

$$u = u$$

$$\frac{us}{u} = u \quad \frac{us}{u} \frac{u}{u} =$$

$$us \frac{u}{u} (u - u) =$$

$$us (u - u) =$$

$$\sqrt{9 + \sqrt{9 + \sqrt{9 + \dots}}} \quad \boxed{13}$$

$$\sqrt{9} = \sqrt{9 + \sqrt{9}}$$

$$\sqrt{9} = 9 + \sqrt{9}$$

$$\sqrt{9} \sqrt{9} = \sqrt{9} \sqrt{9}$$

$$\frac{\sqrt{9} \sqrt{9}}{\sqrt{9}} = \sqrt{9}$$

$$\frac{\sqrt{9} \sqrt{9}}{\sqrt{9}} \times \frac{\sqrt{9}}{\sqrt{9}} =$$

$$\sqrt{9} \frac{\sqrt{9}}{\sqrt{9}} =$$

$$\sqrt{9} \frac{\sqrt{9}}{9 - \sqrt{9}} =$$

$$\sqrt{9} \frac{9 + 9 - \sqrt{9}}{9 - \sqrt{9}} =$$

$$\sqrt{9} \frac{9}{(9 + \sqrt{9})(9 - \sqrt{9})} + 1 =$$

جزءية

الأستاذ: أحمد موسى مقناشي
هاتف: ٠٧٨٥٥٢٦٢٦٦

$$x + \sqrt{x} + \sqrt{x} + \sqrt{x} =$$

$$x + \sqrt{x} + \sqrt{x} + \sqrt{x} =$$

* يمكن الحل أيضاً بتحويل

$$1 - \sqrt{x} = \sqrt{x}$$

$$\sqrt{x}(1 - \sqrt{x}) = \sqrt{x}$$

$$\sqrt{x} \left(1 - \frac{1}{\sqrt{x}}\right) = \sqrt{x}$$

$$\sqrt{x} = \sqrt{x}$$

$$\sqrt{x} (\sqrt{x} + 1) = \sqrt{x}$$

$$\sqrt{x} (\sqrt{x} + 1) = \sqrt{x}$$

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

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

$$\sqrt{x} \frac{\sqrt{x}}{\sqrt{x} - 1} =$$

$$\frac{\sqrt{x}}{\sqrt{x} - 1} =$$

الجزء

$$v_s \left((v_s + \frac{1}{v_s}) \right) \frac{1}{v_s} \quad \boxed{17}$$

$$v_s \left((v_s + \frac{1}{v_s}) v_s \right) \frac{1}{v_s} =$$

$$v_s \left((v_s + \frac{1}{v_s}) v_s \times \frac{1}{v_s} \right) =$$

$$v_s \left((v_s + \frac{1}{v_s}) v_s \right) =$$

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

$$v_s \left((v_s + \frac{1}{v_s}) \right) \quad \boxed{18}$$

$$v_s \left((v_s + \frac{1}{v_s}) \right) =$$

$$v_s \left((v_s + \frac{1}{v_s}) \right) \frac{1}{v_s} + v_s + \frac{1}{v_s} =$$

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

$$v_s \frac{v_s + \frac{1}{v_s}}{v_s} \quad \boxed{19}$$

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

$$v_s \left((v_s + \frac{1}{v_s}) \right) \frac{1}{v_s} \times v_s =$$

$$\frac{v_s}{v_s} \frac{v_s + \frac{1}{v_s}}{v_s} \frac{1}{v_s} \times v_s$$

نکمل أجزاء

$$v_s \frac{1}{(v_s - 1)(1 + v_s)} \quad \boxed{14}$$

$$v_s = v_s$$

$$\frac{v_s}{v_s} = v_s$$

$$\frac{v_s}{v_s} \times \frac{1}{(v_s - 1)(1 + v_s)} =$$

$$v_s \frac{1}{(v_s - 1)(1 + v_s)} =$$

سور جزئية

$$v_s \frac{1}{(v_s - 1)(1 + v_s)} \quad \boxed{10}$$

$$v_s = (v_s - 1)(1 + v_s)$$

$$v_s = v_s \frac{1}{v_s} \times \frac{1}{v_s}$$

$$\frac{v_s}{v_s} = v_s$$

$$\frac{v_s}{v_s} \times \frac{1}{(v_s - 1)(1 + v_s)} =$$

$$v_s \frac{1}{(v_s - 1)(1 + v_s)} =$$

سور جزئية

الاستاذ احمد موسى عطادي
هاتف ٠٧٨٥٣٦٢٦٦

الاستاذ المساعد الدكتور
مكي محمد علي
هاتف ٠٧٨٥٥٦٦٦٦

$$\{ \text{ظا} \} = \text{ظا}$$

$$\text{ظا} = \text{ظا}$$

$$\{ \frac{\text{ظا}}{(1 + \text{ظا})} \}$$

$$\{ \text{ظا} (1 + \text{ظا}) \} =$$

$$\text{ظا} = \text{ظا}$$

$$\frac{\text{ظا}}{\text{ظا}} = \text{ظا}$$

$$\{ \frac{\text{ظا}}{\text{ظا}} (1 + \text{ظا}) \} =$$

$$\{ \text{ظا} (1 + \text{ظا}) \} =$$

$$\{ \frac{\text{ظا} (1 + \text{ظا})}{\text{ظا}} \} =$$

اجزاء

$$\{ \sqrt{1 - \text{ظا}} \} \quad \frac{\pi}{2}$$

$$\{ \sqrt{1 - (1 - \text{ظا})} \} =$$

$$\{ \sqrt{\text{ظا}} \} =$$

$$\{ \sqrt{\text{ظا}} \} =$$

$$\{ \text{ظا} \} \quad 19$$

$$\{ \text{ظا} \times \text{ظا} \} =$$

$$\{ (\text{ظا} - 1) \text{ظا} \} =$$

$$\{ \text{ظا} \text{ظا} - \text{ظا} \} =$$

$$\text{ظا} = \text{ظا}$$

لو غاريتم

$$\{ \text{ظا} + \text{ظا} \} \quad 20$$

$$\{ \text{ظا} \times \text{ظا} \} =$$

$$\{ \text{ظا} \} =$$

$$\{ \text{ظا} \} =$$

$$\{ \frac{\text{ظا}}{\text{ظا}} \} \quad 21$$

$$\{ \frac{\text{ظا}}{\text{ظا} \times \text{ظا}} \} =$$

$$\{ \frac{\text{ظا}}{\text{ظا}} \} =$$

$$\left. \frac{v_s \cdot \text{قاس}}{c + v_s \cdot \epsilon - 1 + v_s \cdot \text{قاس}} \right\} \quad \boxed{96}$$

$$\left. \frac{v_s \cdot \text{قاس}}{3 + v_s \cdot \epsilon - v_s \cdot \text{قاس}} \right\} =$$

$$\frac{v_s}{\text{قاس}} = v_s; \quad v_s \cdot \text{قاس} = v_s$$

$$\left. \frac{v_s}{\text{قاس}} \times \frac{\text{قاس}}{3 + v_s \cdot \epsilon - v_s} \right\} =$$

$$\left. \frac{v_s}{(1 - v_s)(3 - v_s)} \right\} =$$

جزئية

$$\left. \frac{v_s}{(v_s - 0) v_s} \right\} \quad \boxed{97}$$

$$\left. \frac{1}{(\epsilon - 1) v_s} \right\} =$$

$$\left. \frac{0}{\epsilon - 1} \right\} =$$

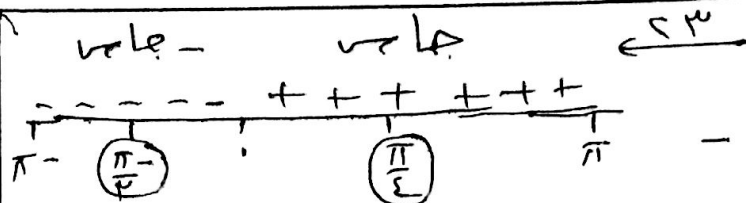
$$\left. \frac{0}{\epsilon - 1} \right\} \frac{1}{\epsilon} =$$

$$\frac{1}{\epsilon} + \left| \frac{\epsilon - 1}{\epsilon} \right| \frac{1}{\epsilon} =$$

* يمكن حل السؤال بالكمبيوتر

$$\left. \frac{1}{(1 - \epsilon) v_s} \right\} \quad \text{الجزئية}$$

$$1 - \epsilon = v_s$$



$$\left. \frac{v_s \cdot \text{قاس}}{3 + v_s \cdot \epsilon - v_s \cdot \text{قاس}} \right\} \frac{\pi}{\epsilon} + \left. \frac{v_s \cdot \text{قاس}}{3 + v_s \cdot \epsilon - v_s \cdot \text{قاس}} \right\} \frac{\pi}{\epsilon} =$$

$$\left. \frac{\pi}{\epsilon} \right\} (v_s \cdot \text{قاس} - 1) \frac{\pi}{\epsilon} + \left. \frac{\pi}{\epsilon} \right\} (v_s \cdot \text{قاس}) \frac{\pi}{\epsilon} =$$

$$\left(1 - \frac{1}{\epsilon} \right) \frac{\pi}{\epsilon} + \left(\frac{1}{\epsilon} - 1 \right) \frac{\pi}{\epsilon} =$$

$$\frac{\pi}{\epsilon} + 1 - \frac{1}{\epsilon} =$$

$$\frac{\pi - 3}{\epsilon} =$$

$$\left. \frac{v_s \cdot \text{قاس}}{(1 - \epsilon) v_s} \right\} \quad \boxed{98}$$

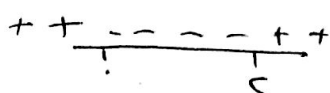
$$\left. \frac{1}{(1 - \epsilon) v_s} \right\} =$$

$$\dots \epsilon = v_s$$

$$\left. \frac{v_s \cdot \text{قاس}}{(1 - \epsilon) v_s} \right\} + \left. \frac{v_s \cdot \text{قاس}}{(1 - \epsilon) v_s} \right\} \quad \boxed{99}$$

$$\epsilon = v_s - \epsilon$$

$$\epsilon = (1 - v_s) v_s$$



$$\left. \frac{v_s \cdot \text{قاس}}{(1 - \epsilon) v_s} \right\} - \left. \frac{v_s \cdot \text{قاس}}{(1 - \epsilon) v_s} \right\} =$$

$$\left. \frac{v_s \cdot \text{قاس}}{(1 - \epsilon) v_s} \right\} \frac{\pi}{\epsilon} =$$

$$\left. \frac{\pi}{\epsilon} \right\} \frac{\pi}{\epsilon} - \left. \frac{\pi}{\epsilon} \right\} \frac{\pi}{\epsilon} =$$

$$\left. \frac{17}{3} \right\} = \frac{1}{3} - 1 =$$

الأستاذ أحمد موسى مقدادي
مات 0777777777

$$u_s \frac{c}{(\sqrt{v})^3 + u_s \varepsilon + (\sqrt{v})^3} \Big|_1^{\infty} =$$

$$u_s \frac{u_p \times c}{u_p^3 + u_p \varepsilon + u_p} \Big|_1^{\infty} =$$

$$u_s \frac{u_p \gamma}{(1 + u_p \varepsilon + u_p) u_p} \Big|_1^{\infty} =$$

$$u_s \frac{\gamma}{(1 + u_p)(1 + u_p)} \Big|_1^{\infty} =$$

کے لیے جزئیہ

$$\sqrt{v} = u_p \quad [37]$$

$$u_s = u_p$$

$$u_s u_p \varepsilon = u_s$$

$$u_s u_p \varepsilon \times \frac{1}{(1 + u_p) u_p} \Big|_1^{\infty} =$$

$$u_s (1 + u_p) \Big|_1^{\infty} =$$

$$\varepsilon + \frac{\varepsilon}{(1 + u_p)} \Big|_1^{\infty} =$$

$$\varepsilon + \frac{\varepsilon}{(1 + \sqrt{v})} \frac{1}{\varepsilon} =$$

الاستاد: احمد موسیٰ مقدادی
ماتف ۰۷۸۵۵۳۶۶۶۶

$$u_s \left(u_p \varepsilon + u_p \varepsilon + u_p \varepsilon + u_p \varepsilon \right) u_s \Big|_1^{\infty} \quad [33]$$

$$\frac{u_s (u_p \varepsilon + 1) u_s}{u_s} \Big|_1^{\infty} =$$

نکل آجڑا

$$\frac{u_s (1 + u_s) u_s}{u_s} \Big|_1^{\infty} \quad [34]$$

$$u_s u_s = \varepsilon$$

$$u_s (u_s + u_s) = \varepsilon$$

$$u_s (1 + u_s) u_s =$$

$$u_s (1 + u_s) = \varepsilon$$

$$\frac{1}{1 + u_s} = \varepsilon$$

$$\varepsilon - \varepsilon =$$

$$u_s \left(\frac{(1 + u_s) u_s}{1 + u_s} \right) + \frac{u_s u_s}{1 + u_s} =$$

$$\varepsilon + u_s + \frac{u_s u_s}{1 + u_s} =$$

$$\sqrt{v} = u_p \quad [35]$$

$$u_s = u_p$$

$$u_s u_p \varepsilon = u_s$$

$$1 = u_p \quad 1 = u_s$$

$$c = u_p \quad 1 = u_s$$

٣٧

$$u = \sqrt{v}$$

$$u^2 = v$$

$$u^2 u^2 = v^2$$

$$\left\{ \frac{u^2 u^2}{u^2} \right\} = \text{اجزاء}$$

٣٨

$$\left\{ \frac{u^2 (v - u^2)}{u^2} \right\}$$

$$= \frac{u^2 u^2}{u^2} - (v - u^2) =$$

$$= \frac{u^2}{u^2} - (v - u^2) =$$

$$= \frac{u^2}{u^2} - (v - u^2) =$$

$$= \frac{u^2}{u^2} + 1 - (v - u^2) =$$

↑
کسور جزئیہ

حل آخر

$$\left\{ \frac{u^2 (v + u^2)(v - u^2)}{u^2} \right\} =$$

$$\left\{ \frac{u^2 (v + u^2)}{u^2} + \frac{u^2 (v - u^2)}{u^2} \right\} =$$

↑ اجزاء

↑ اجزاء

الاستاذ: احمد موسى مقدادي
هاتف ٠٧٨٥٥٣٦٦٦٦

٣٩

$$u = \sqrt{v}$$

$$u^2 = v$$

$$u^2 u^2 = v^2$$

$$\left\{ \frac{u^2 u^2}{u^2} \right\} =$$

$$\left\{ \frac{u^2 u^2}{u^2} \right\} =$$

$$= \frac{u^2 u^2}{u^2} + 1 =$$

$$= \frac{u^2 u^2}{u^2} + 1 =$$

٤٠

$$\left\{ \frac{u^2 (v - u^2)}{u^2} \right\}$$

اجزاء مرتبہ

٤١

$$u = \sqrt{v + 1}$$

الحل

٤٢

$$u = \sqrt{1 + v}$$

$$u^2 = 1 + v$$

$$u^2 u^2 = (1 + v)^2$$

$$\left\{ \frac{u^2 u^2}{u^2} \right\} =$$

$$\left\{ \frac{u^2 (1 + v)}{u^2} \right\} =$$

قسط طویلہ ثم لو غاریم

$$\begin{aligned}
 & \cancel{v_s v_{t1} v_{t2}} + \cancel{v_s v_{t1} v_{t2}} = \\
 & \cancel{v_s v_{t1} v_{t2}} - \cancel{v_s v_{t1} v_{t2}} + \\
 & \cancel{v_s v_{t1} v_{t2}} - \cancel{v_s v_{t1} v_{t2}} + \\
 & p + \cancel{v_s v_{t1} v_{t2}} + \cancel{v_s v_{t1} v_{t2}} =
 \end{aligned}$$

$$v_s \frac{v_{t1}}{v_{t2}} \times \frac{1}{1 + \frac{v_{t1}}{v_{t2}}} \quad [26]$$

$$v_s \frac{v_{t1}}{v_{t2} + 1} =$$

$$p + \left| \frac{v_{t1}}{v_{t2} + 1} + 1 \right| =$$

$$\text{حل آخر} \quad v_s \frac{1}{1 + \frac{1}{v_{t2}}} =$$

$$v_s \frac{v_{t2}}{v_{t2} + 1} =$$

$$p + \left| \frac{v_{t2}}{v_{t2} + 1} + 1 \right| =$$

$$\frac{v_s}{v_{t2}} = v_s \quad v_{t2} = v_p \quad [27]$$

$$v_s \left(\frac{v_{t2}}{v_{t2} + 1} \right) =$$

$$\frac{v_s}{v_{t2}} \left(\frac{v_{t2}}{v_{t2} + 1} \right) =$$

$$\frac{v_s}{v_{t2}} \left(\frac{v_{t2}}{v_{t2} + 1} \right) =$$

اجزاء

يكن الحل ايضاً بفرض $v_s = v_{t2}$

$$v_s \frac{v_{t2} (1 - v_{t2})}{v_{t2}} \quad [28]$$

$$v_s \frac{1}{v_{t2}} \times \frac{v_{t2} (1 - v_{t2})}{v_{t2}} =$$

$$v_s \frac{1}{v_{t2}} \times \left(\frac{1 - v_{t2}}{v_{t2}} \right) =$$

$$v_s \frac{1}{v_{t2}} \times \left(\frac{1}{v_{t2}} - 1 \right) =$$

$$v_p = \frac{1}{v_{t2}} - 1 \quad \text{ونكمل الحل}$$

$$v_s \left(\frac{v_{t2}}{v_{t2} + 1} \right) =$$

$$v_p = v_{t2}$$

$$v_s \frac{v_{t2} + v_{t2}}{v_{t2} + 1} \quad [29]$$

$$v_s \frac{v_{t2} - 1}{v_{t2} - 1} \times \frac{v_{t2} + v_{t2}}{v_{t2} + 1} =$$

$$v_s \frac{v_{t2} - v_{t2} + v_{t2} v_{t2} - v_{t2}}{v_{t2} - 1} =$$

$$v_s \frac{v_{t2} - v_{t2} + v_{t2} v_{t2} - v_{t2}}{v_{t2}} =$$

اجزاء

$$v_s \left(\frac{v_{t2}}{v_{t2} + 1} \right) =$$

$$+ \left(\frac{v_{t2}}{v_{t2} + 1} \right) =$$

اجزاء

الاستاذ / احمد موسى مشاكبي
ماتف ٠٧٨٥٣٢٦٦٦

$$\left\{ \frac{v^3}{v^3 + v^3 + v^3} \right\} \quad [50]$$

$$\left\{ \frac{v^3}{v^3 + v^3 + v^3} \right\} =$$

$$\left\{ \frac{v^3}{v^3 + v^3 + v^3} \right\} =$$

$$- - - v^3 = v^3$$

$$\left\{ \frac{v + v}{c - v} \right\} \quad [51]$$

$$v = \sqrt{v + v}$$

$$v = v + v$$

$$\boxed{v + v = v}$$

$$v + v \times \frac{v}{c - v} =$$

$$\left\{ \frac{v + v}{c - v} \right\} =$$

قصة وكسور جزئية

$$\left\{ \frac{v}{(1 + v)(1 + v)} \right\} \quad [52]$$

$$v = v + v$$

كسور جزئية

$$\left\{ \frac{v^4}{1 - 1 + v^4} \right\} \quad [53]$$

$$\left\{ \frac{v^4}{9 - v^4} \right\} =$$

$v = v^4$ ثم نكمل قصة
وكسور جزئية

$$\left\{ \frac{v^4}{v^4 + v^4 + v^4} \right\} \quad [54]$$

$$\left\{ \frac{v^4}{v^4 + v^4 + v^4} \right\} =$$

$$\frac{+++}{\pi}$$

$$\left\{ \frac{v^4}{v^4 + v^4 + v^4} \right\} =$$

$$\left\{ \frac{v^4}{v^4 + v^4 + v^4} \right\} =$$

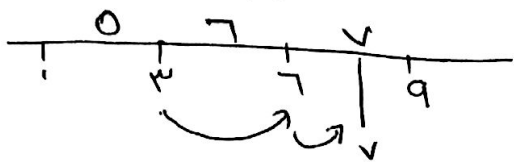
$$\left\{ \frac{v^4}{v^4 + v^4 + v^4} \right\} =$$

$$\left\{ \frac{v^4}{v^4 + v^4 + v^4} \right\} =$$

$$- - - v^4 = v^4$$

الأستاذ: أحمد موسى مصطفى
هاتف ٧٨٥٥٣٦٦٦٦

$$3 = \frac{1}{\frac{1}{3}} = 1 \quad [02]$$



$$\sqrt{3} \sqrt{3} \left\{ + \sqrt{3} \sqrt{7} \right\} + \sqrt{3} \sqrt{7} \left\{ + \sqrt{3} \sqrt{9} \right\} =$$

$$\sqrt{3} \left\{ \frac{9}{3} + (7-3)7 + (9-7)7 \right\} =$$

$$\frac{9-27}{3} + 7 + 14 =$$

$$[50] =$$

[05] قسمة طويلة ثم كسور
جزئية

$$\sqrt{3} \frac{(\cancel{3} + \sqrt{3} \cancel{3} - \cancel{3}) (\cancel{3} + \sqrt{3})}{(3 + \sqrt{3}) (\cancel{3} + \sqrt{3})} \left\{ = \right.$$

$$\sqrt{3} \frac{3 + \sqrt{3} 3 - 3}{3 + \sqrt{3}} \left\{ = \right.$$

قسمة طويلة ثم لو غار بقم

$$[06] \sqrt{3} = \text{لو قتلنا}$$

ثم يصبح التكامل على الكسور
الجزئية

الأستاذ: أحمد موسى مقدادي
هاتف ٠٧٨٥٣٦٢٦٦

$$\sqrt{3} \frac{3}{(3 + \sqrt{3}) (7 - \sqrt{3})} \left\{ \right. \quad [03]$$

كسور جزئية

$$\sqrt{3} (1 - \sqrt{3}) (1 - \sqrt{7}) \left\{ \right. \quad [04]$$

$$\sqrt{3} \left\{ (1 - \sqrt{3}) \sqrt{3} \right\} (1 - \sqrt{7}) \left\{ = \right.$$

$$\sqrt{3} (3 - \sqrt{3}) (1 - \sqrt{7}) \left\{ = \right.$$

$$- - - \sqrt{3} - \sqrt{3} 3 = 3$$

$$\sqrt{3} \frac{1}{\frac{1}{1} - 1} \left\{ \right. \quad [00]$$

$$\sqrt{3} \frac{1 + \sqrt{3}}{1 + \sqrt{3}} \times \frac{\sqrt{3}}{1 - \sqrt{3}} \left\{ = \right.$$

$$\sqrt{3} \frac{\sqrt{3} + \sqrt{3}}{1 - \sqrt{3}} \left\{ = \right.$$

$$\sqrt{3} \frac{\sqrt{3} + \sqrt{3}}{\sqrt{3} - 1} \left\{ = \right.$$

$$\sqrt{3} \left\{ \sqrt{3} + \sqrt{3} \right\} - \sqrt{3} \left\{ \sqrt{3} + \sqrt{3} \right\} =$$

$$= \sqrt{3} (1 - \sqrt{3}) + \sqrt{3}$$

$$= \sqrt{3} + \sqrt{3} + \sqrt{3} + \sqrt{3} =$$

$$\boxed{69} \quad \sqrt{u} = u$$

$$u = u^2$$

$$\frac{u^2 u^2 u^2}{u^2} = u^2$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \times \frac{u^2}{u^2} \right) =$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \times \frac{u^2}{u^2} \right) =$$

$$\boxed{70} \quad u = u^2$$

ثم كسر جزئية

$$\boxed{71} \quad \frac{\pi}{\lambda} = \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{1}{\lambda} - \frac{\pi}{\lambda} \right) \frac{1}{\lambda} =$$

الأستاذ أحمد موسى عطاري
هاتف ٠٧٨٥٥٣٦٦٦٦

$$\boxed{72} \quad \left(\frac{u^2 u^2 u^2}{u^2} \right) =$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$u = u^2$$

حل آخر بإخراج جتا من المقام
ثم رفعه للبسط و $u = u^2$

$$\boxed{73} \quad \frac{1}{1+u} = u$$

ثم يصبح التكامل أجزاء

$$\boxed{74} \quad u = u^2$$

$$u = u^2$$

$$u^2 u^2 u^2 = u^2$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

$$= \left(\frac{u^2 u^2 u^2}{u^2} \right)$$

كسر جزئية

$$\left\{ \frac{u_p s}{\cancel{u_p s}} \times \frac{\epsilon \text{ جاكس}}{1 - \text{جاكس}} \right\} =$$

$$\left\{ \epsilon = \frac{u_p s}{1 - \epsilon u_p s} - 1 \right\}$$

$$\left\{ \epsilon = \frac{1 - \epsilon u_p s}{1 - \epsilon u_p s} \right\}$$

قصة طويلة ثم كسور جزئية

$$\left\{ u_p s (u_p s \text{ جاكس}) \right\} \quad [71]$$

$$\left\{ u_p s \left(\frac{u_p s}{\epsilon} \right) \right\} =$$

$$\left\{ \frac{1}{\epsilon} \underbrace{u_p s}_{\text{جاكس}} \underbrace{u_p s}_{\text{جاكس}} \right\} =$$

$$u_p s \text{ جاكس} = \text{جاكس}$$

$$u_p s \text{ جاكس} =$$

$$u_p s (\text{جاكس} - 1) \text{ جاكس} =$$

$$\text{جاكس} = u_p s$$

$$\frac{\text{جاكس}}{\epsilon} + \frac{\text{جاكس}}{\epsilon} - = 0$$

$$\left(\frac{\text{جاكس}}{\epsilon} + \frac{\text{جاكس}}{\epsilon} - \right) \frac{1}{\epsilon} =$$

$$\left(\frac{\text{جاكس}}{\epsilon} + \frac{\text{جاكس}}{\epsilon} - \right) \frac{1}{\epsilon} -$$

نحلل جاكس جاكس
جاكس (جاكس - 1)
نفرق جاكس = جاكس

$$\left\{ \frac{\text{جاكس}}{u_p s (\text{جاكس} + 1)} \right\}$$

$$\left\{ \frac{\text{جاكس}}{u_p s \epsilon \text{ جاكس}} \right\} =$$

$$\left\{ \frac{1}{\epsilon} \text{ جاكس} \right\} =$$

$$u_p s \text{ جاكس} = \text{جاكس}$$

$$\frac{u_p s}{\text{جاكس}} = u_p s \quad \text{جاكس} = u_p s \quad [77]$$

$$\left\{ \frac{u_p s}{\text{جاكس}} (\text{جاكس}) \right\} =$$

$$u_p s \text{ جاكس} =$$

$$u_p s (\text{جاكس} + 1) \frac{1}{\epsilon} \times u_p s =$$

$$u_p s \text{ جاكس} \frac{1}{\epsilon} + u_p s \frac{1}{\epsilon} =$$

اجزاء مباشر

$$\left\{ \frac{u_p s \text{ جاكس}}{1 - \text{جاكس}} \right\} = [77]$$

$$\text{جاكس} = u_p s$$

$$\frac{u_p s}{\text{جاكس}} = u_p s$$

الأستاذ أحمد موسى مقدادي
هاتف ٠٧٨٥٣٦٢٦٦

$$\boxed{72} \quad \left\{ \begin{array}{l} \text{جاءت قاتل} \\ \text{م} \end{array} \right\}$$

$$\left\{ \begin{array}{l} \text{جاءت قاتل} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} = \frac{1}{2} \times \left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} = \frac{1}{2} \times \left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\boxed{73} \quad \left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\boxed{74} \quad \left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\text{م} = \text{م}$$

$$\text{م} = \text{م}$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

اهزاز كم قسة وكور جزئية

الأستاذ: أحمد موسى مقدادي
هاتف ٠٧٨٥٥٣٦٢٦٦

$$\boxed{79} \quad \left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\boxed{70} \quad \left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\boxed{71} \quad \left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

$$\left\{ \begin{array}{l} \text{جاءت} \\ \text{م} \end{array} \right\} =$$

٧٥ ضرب بمرافق المقام ١- جاب

٧٦ نفرض $\sqrt{0 + \sqrt{3}} = \sqrt{3}$

$0 + \sqrt{3} = \sqrt{3}$

$\sqrt{3} = \sqrt{3} \sqrt{3} \sqrt{3}$

$\sqrt{3} \sqrt{3} \sqrt{3} \times \frac{\sqrt{3} - \sqrt{0 + \sqrt{3}}}{\sqrt{3} + \sqrt{3}} =$

$\sqrt{3} \sqrt{3} \sqrt{3} \times \frac{\sqrt{3} - \sqrt{3}}{\sqrt{3} + \sqrt{3}} =$

$\sqrt{3} \frac{\sqrt{3} - \sqrt{3}}{\sqrt{3} + \sqrt{3}} =$

قسيه ثم لو خارج

٧٧ نفرض $\sqrt{3} = \sqrt{3} + \sqrt{3}$

$\sqrt{3} (\sqrt{3} - \sqrt{3}) = \sqrt{3}$

$\frac{\sqrt{3}}{\sqrt{3} - \sqrt{3}} = \sqrt{3}$

$\frac{\sqrt{3}}{\sqrt{3} - \sqrt{3}} (\sqrt{3} - \sqrt{3}) =$

$\frac{(\sqrt{3} - \sqrt{3}) (\sqrt{3} + \sqrt{3})}{\sqrt{3} - \sqrt{3}} =$

$\sqrt{3} \sqrt{3} =$

$\sqrt{3} + \sqrt{3} =$

$\sqrt{3} + \sqrt{3} + \sqrt{3} =$

الأستاذ أحمد موسى قناني
هاتف ٠٧٨٥٥٦٦٦٦٦

٧٨ $\sqrt{3} = \sqrt{3}$

$\sqrt{3} = \sqrt{3}$

$\sqrt{3} \sqrt{3} \sqrt{3} = \sqrt{3}$

$\sqrt{3} \sqrt{3} \sqrt{3} \times \frac{1}{\sqrt{3} + \sqrt{3}} =$

$\sqrt{3} \frac{\sqrt{3}}{(\sqrt{3} + \sqrt{3})} =$

$\sqrt{3} \frac{1}{(1 + \sqrt{3})} \sqrt{3} =$

$\sqrt{3} \frac{\sqrt{3}}{1 + \sqrt{3}} \sqrt{3} =$

$\sqrt{3} - \sqrt{3} = 1 + 1 + 1$

* يمكن العمل بالكسور الجزئية

٧٩ $\sqrt{3} \frac{1}{\sqrt{3} - \sqrt{3}} =$

$\sqrt{3} \frac{1}{\sqrt{3} - \sqrt{3}} \times (\sqrt{3} - \sqrt{3}) =$

اجزاء ثم كسور جزئية

١. الجذور مختلفة لذلك

ضرب بمرافق المقام

$\sqrt{3 + \sqrt{3}} + \sqrt{3 + \sqrt{3}}$

٨١ ضرب بمرافق للمقام

$$\frac{1}{1 + \sqrt{2} + 1}$$

٨٢

$$\sqrt{2} \frac{1 - 1 + \sqrt{2}}{1 + \sqrt{2}} =$$

$$\sqrt{2} \frac{1}{1 + \sqrt{2}} - \sqrt{2} \frac{1 + \sqrt{2}}{1 + \sqrt{2}} =$$

$$\sqrt{2} \frac{1}{1 + \sqrt{2}} - \sqrt{2} 1 =$$

مباشر ضرب مرافق

٨٣ قسمة طويلة ثم كسور جزئية

٨٤ $\sqrt{2} =$ لويس ثم اجزاء

مرتبة دوري

٨٥ نفرض $\sqrt{2} =$ قاسم + خلاص ...

٨٦ نفرض $\sqrt{2} =$ هو

ثم كسور جزئية

٨٧

$$\sqrt{2} \left(\frac{\sqrt{2}}{\sqrt{2}} - \frac{\sqrt{2}}{\sqrt{2}} \right)$$

$$= \sqrt{2} \left(\frac{\sqrt{2}}{\sqrt{2}} - \frac{\sqrt{2}}{\sqrt{2}} \right)$$

$$= \left(\sqrt{2} \frac{\sqrt{2}}{\sqrt{2}} - \sqrt{2} \frac{\sqrt{2}}{\sqrt{2}} \right)$$

$$= \left(\sqrt{2} \frac{\sqrt{2}}{\sqrt{2}} - \sqrt{2} \frac{\sqrt{2}}{\sqrt{2}} \right)$$

بناضعف الزاوية

$$= \sqrt{2} + 1$$

٨٨

$$\sqrt{2} = \sqrt{2 - \sqrt{2}} - \sqrt{2}$$

$$\sqrt{2 - \sqrt{2}} = \sqrt{2} - \sqrt{2}$$

$$\sqrt{2 - \sqrt{2}} = (\sqrt{2} - \sqrt{2})$$

$$\sqrt{2 - \sqrt{2}} = \sqrt{2} + \sqrt{2} - \sqrt{2}$$

$$\sqrt{2} + \sqrt{2} = \sqrt{2} + \sqrt{2}$$

$$\sqrt{2} + \sqrt{2} = \sqrt{2}$$

$$\sqrt{2} \left(\sqrt{2} - \frac{1}{\sqrt{2}} \right) = \sqrt{2}$$

$$\sqrt{2} \left(\sqrt{2} - \frac{1}{\sqrt{2}} \right) =$$

$$= \sqrt{2} \left(\sqrt{2} - \frac{1}{\sqrt{2}} \right)$$

$$= \sqrt{2} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}$$

$$= \sqrt{2} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}$$

٨٩

$$\sqrt{2} \frac{(0 + \sqrt{2})}{(0 + \sqrt{2})^2}$$

$$= \sqrt{2} \frac{(0 + \sqrt{2})}{(0 + \sqrt{2})^2}$$

$$= \sqrt{2} \frac{(0 + \sqrt{2})}{(0 + \sqrt{2})^2}$$

اجزاء

ويكون العمل بالتعويض

الأستاذ باحسان محمد قنديل
٧٨٥٥٣٢٢٦٦

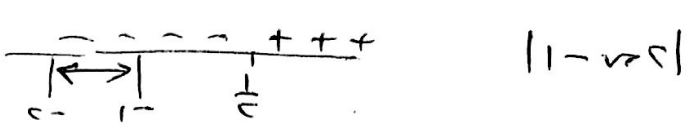
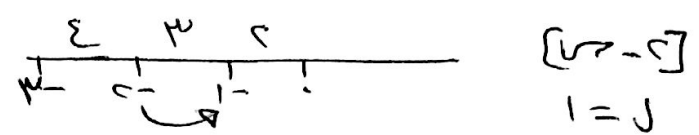
٩٠. نفرض $\sqrt{3+\sqrt{2}} = \sqrt{a} + \sqrt{b}$
ثم قسمة وكسور جزئية

٩١.
$$\int \frac{\sqrt{a} + \sqrt{b} - \sqrt{a+b}}{\sqrt{a} - \sqrt{b}} dx =$$

$$\int \frac{x(\sqrt{a} - \sqrt{b})}{\sqrt{a} - \sqrt{b}} dx =$$

$$= \frac{x^2}{2} + \sqrt{a}x - \sqrt{b}x - \frac{1}{2}x^2$$

٩٢. إعادة التعريف للاقتارين معاً



$$\int \frac{\sqrt{2} + 3}{\sqrt{2} - 1} dx =$$

قسمة ثم لوغاريتم

٩٣.
$$\int \frac{\sqrt{(1+\sqrt{2})^2}}{\sqrt{2}} dx =$$

$$\int \frac{\sqrt{(1+\sqrt{2})^2} \sqrt{2}}{\sqrt{2}} dx =$$

$$\int \frac{\sqrt{(1+\sqrt{2})^2}}{\sqrt{2}} dx =$$

نفرض $\sqrt{2} = \sqrt{a} + \sqrt{b}$

٩٤.
$$\int \frac{\sqrt{(3+\sqrt{2})^2}}{\sqrt{2} - \sqrt{2}} dx =$$

$$\int \frac{|3+\sqrt{2}|}{\sqrt{2} - \sqrt{2}} dx =$$

$$\int \frac{3+\sqrt{2}}{\sqrt{2} - \sqrt{2}} dx =$$

قسمة وكسور جزئية

٩٥

$$\int \frac{\sqrt{2} - \sqrt{2} - \sqrt{2}}{\sqrt{2} - \sqrt{2}} dx =$$

$$\int \frac{(\sqrt{2} - 1)\sqrt{2}}{\sqrt{2} - \sqrt{2}} dx =$$

$\sqrt{2} = \sqrt{a} + \sqrt{b}$ ثم كسور جزئية

٩٦.
$$\int \frac{\sqrt{2}}{\sqrt{(1+\sqrt{2})^2}} dx =$$

$$\sqrt{2} = \sqrt{a} - \sqrt{b}$$

$$\sqrt{2} = \sqrt{2}(\sqrt{2} - 1)$$

$$\frac{\sqrt{2}}{(\sqrt{2} - 1)\sqrt{2}} = \sqrt{2}$$

$$\int \frac{\sqrt{2} \times (\sqrt{2} - 1)^{\frac{1}{2}}}{(\sqrt{2} - 1)\sqrt{2}} dx =$$

$$\int \frac{1}{\sqrt{2}} dx = \frac{1}{\sqrt{2}}x + C$$

الاستاذ احمد عيسى قنديل
ماتف ٠١٨٥٥٣٦٦٦٦

$$[1..] \text{ نفرین } \psi^7 = \psi$$

$$\psi^3 = \psi^2 \quad \psi^5 = \psi^2$$

$$\psi^5 \psi^7 = \psi^5$$

$$\psi^5 \psi^7 \times \frac{1}{\psi^3 - \psi^5} =$$

$$\psi^5 \frac{\psi^8}{(\psi^5 - 1)^2} =$$

$$\psi^5 \frac{\psi^8}{\psi^5 - 1} =$$

قسطہ نم لو غار یق

$$[97] \quad \psi^5 \frac{\psi^8}{(\psi^5 - 1) - 1}$$

$$\psi^5 \frac{\psi^8}{\psi^5 - 1} =$$

$$\psi^5 (1 - \psi^5) =$$

$$\psi^5 - \psi^{10} =$$

$$[98] \quad \psi^5 \frac{\psi^8}{(1 + \psi^3)^2} =$$

$$\psi^5 \frac{\psi^8}{(1 + \psi^3)^2} =$$

اجزاء

$$[99] \quad \psi^5 (\psi^8 - \psi^8 \psi^3 \psi^5)$$

$$= \psi^5 (\psi^8 - (\psi^8 \psi^3 + \psi^8 \psi^5) \frac{1}{2} \times 2) =$$

$$= \psi^5 (\psi^8 - \psi^8 \psi^3 + \psi^8 \psi^5) =$$

$$= \psi^5 \psi^8 \psi^5 =$$

اجزاء مرتین دوری

أحمد موسیٰ مقدادی

۰۷۸۵۵۳۶۲۶۶

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الاستاذ: أحمد موسیٰ مقدادی
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