

التاريخ: .....

الحصه: .....

الاجابة النموذجية للاختبار الوزارة علميا (م ٣)  
الدورة الشتوية 2016

السؤال الأول

$$(P) \int \frac{1}{\sqrt{u^2 - 6u + 10}} du = \frac{1}{\sqrt{u^2 - 6u + 9}} + \frac{1}{\sqrt{u^2 - 6u + 10}}$$

$$\int \frac{1}{\sqrt{u^2 - 6u + 10}} du = \int \frac{1}{\sqrt{u^2 - 6u + 9}} du + \int \frac{1}{\sqrt{u^2 - 6u + 10}} du$$

$$\int \frac{1}{\sqrt{u^2 - 6u + 10}} du = \int \frac{1}{\sqrt{u^2 - 6u + 9}} du + \int \frac{1}{\sqrt{(u-3)^2 + 1}} du$$

$$\frac{1}{2} \times \frac{1}{\sqrt{u^2 - 6u + 9}} + \frac{1}{2} = \frac{1}{2} \times \frac{1}{\sqrt{u^2 - 6u + 9}} + \frac{1}{2}$$

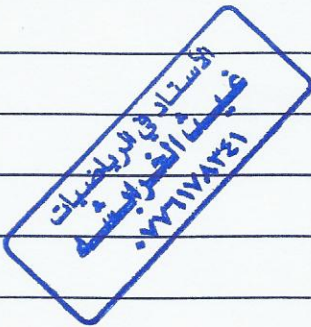
$$\frac{11}{12} = \frac{3+1}{12} = \frac{1}{2} + \frac{1}{3} = \frac{1}{2} \times \frac{1}{\sqrt{u^2 - 6u + 9}} + \frac{1}{2}$$

$$(2) \int \frac{1}{\sqrt{u^2 - 6u + 10}} du = \int \frac{1}{\sqrt{(u-3)^2 + 1}} du = \int \frac{1}{\sqrt{u^2 - 6u + 10}} du$$

$$\frac{1}{\sqrt{u^2 - 6u + 10}} = \frac{1}{\sqrt{(u-3)^2 + 1}} = \frac{1}{\sqrt{u^2 - 6u + 10}} = \frac{1}{\sqrt{u^2 - 6u + 10}}$$

$$\frac{1}{\sqrt{u^2 - 6u + 10}} = \frac{1}{\sqrt{(u-3)^2 + 1}} = \frac{1}{\sqrt{u^2 - 6u + 10}} = \frac{1}{\sqrt{u^2 - 6u + 10}}$$

∴ عزم



التاريخ: .....

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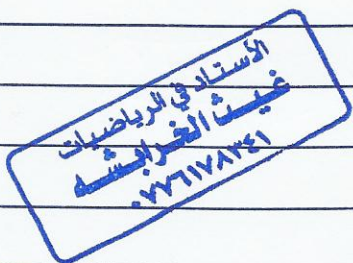
$$c = \frac{(1+3)(1-3)}{3-1} \cdot \frac{1-9}{1-3} = \frac{1-9}{1-3} \cdot \frac{1-9}{\sqrt{(1-3)^2}}$$

$$c = \frac{(-3-3)(-3-3)}{3-1} \cdot \frac{1-9}{1-3} = \frac{1-9}{1-3} \cdot \frac{1-9}{\sqrt{(1-3)^2}}$$

$$c = \left(\frac{1}{3}\right)^n$$

$$c = \left(\frac{1}{3}\right)^n \Rightarrow \frac{1}{3} = \left(\frac{1}{3}\right)^n$$

∴ n = 1 عند c = 1/3



السؤال الثاني

$$12 - c_1 = (c) \cdot 3 - (5) \cdot 3 \leftarrow \sqrt{7} = \frac{(c) \cdot 3 - (5) \cdot 3}{3} = \frac{(3c - 15) \Delta}{3}$$

$$12 - 57 = (5) \cdot 3 - (9) \cdot 3 \leftarrow 14 = \frac{(5) \cdot 3 - (9) \cdot 3}{3} = \frac{(15 - 27) \Delta}{3}$$

$$11 = \frac{14 \sqrt{7}}{7} = \frac{(c) \cdot 3 - (9) \cdot 3}{c-9} = \frac{(3c - 27) \Delta}{c-9}$$

$$57 + c_1 = (5) \cdot 3 - (9) \cdot 3 + (c) \cdot 3 - (5) \cdot 3 : \textcircled{2} + \textcircled{1}$$

$$77 = (c) \cdot 3 - (9) \cdot 3$$

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(ب)  $\{1, 2, 3, 4, 5\} \cup \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

(ج)  $\{2, 3, 4, 5, 6, 7, 8, 9, 10\} = \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$

(د)  $\{2, 3, 4, 5, 6, 7, 8, 9, 10\} \cap \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\} = \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$

(هـ)  $1 - \frac{1}{2} = \frac{2-1}{2} = \frac{1}{2}$  ،  $1 - \frac{1}{3} = \frac{3-1}{3} = \frac{2}{3}$  ،  $1 - \frac{1}{4} = \frac{4-1}{4} = \frac{3}{4}$  ،  $1 - \frac{1}{5} = \frac{5-1}{5} = \frac{4}{5}$  ،  $1 - \frac{1}{6} = \frac{6-1}{6} = \frac{5}{6}$  ،  $1 - \frac{1}{7} = \frac{7-1}{7} = \frac{6}{7}$  ،  $1 - \frac{1}{8} = \frac{8-1}{8} = \frac{7}{8}$  ،  $1 - \frac{1}{9} = \frac{9-1}{9} = \frac{8}{9}$  ،  $1 - \frac{1}{10} = \frac{10-1}{10} = \frac{9}{10}$

(2)  $\frac{P - 2(1 - \frac{1}{2}) - 3(1 - \frac{1}{3})}{(1 - \frac{1}{2})} = (1 - \frac{1}{2}) \times 2 + (1 - \frac{1}{3}) \times 3 = (1 - \frac{1}{2}) \times 2 + (1 - \frac{1}{3}) \times 3$

$P - 0 = 3 \times 2 \leftarrow \frac{P - 0}{2} = 3 \times 2 \leftarrow \frac{P - 1 - 1}{2} = 2 \times (1) \leftarrow$

$\boxed{P = 7}$

السؤال الثالث

(P)  $1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + (n-1) \times n = \frac{n(n-1)(n+1)}{3}$

(1)  $1 + 2 \times 1 = \frac{1(1-1)(1+1)}{3}$

$2 + 1 \times 2 = \frac{2(2-1)(2+1)}{3}$

$7 = 2 + 1 \times 2 = \frac{2(2-1)(2+1)}{3}$

$\frac{7}{2} = \frac{2}{1} = \frac{2}{1}$

عندما  $n=1$   
عندما  $n=2$   
عندما  $n=3$   
السابق  $\boxed{c=2}$

(ب)  $\frac{1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + (n-1) \times n}{(n-1) \times n} = \frac{1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + (n-1) \times n}{(n-1) \times n}$

$\frac{1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + (n-1) \times n}{(n-1) \times n} = \frac{1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + (n-1) \times n}{(n-1) \times n}$

التاريخ: .....

الحصه: .....

$$c = \sqrt{a^2 - b^2} \leftarrow \text{جاء } c = \sqrt{a^2 - b^2}$$

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

$$\neq \sqrt{a^2 - b^2} \cdot \frac{1}{1} = \sqrt{a^2 - b^2}$$

$$c = \sqrt{a^2 - b^2} \leftarrow \text{جاء } c = \sqrt{a^2 - b^2}$$

$$\left. \begin{aligned} c < a &: \sqrt{a^2 - b^2} \\ c \geq a &: \sqrt{a^2 - b^2} \end{aligned} \right\} = \text{وهو } c$$

$$1 + \frac{1}{2k} = \dots = \frac{\sqrt{a^2 - b^2} + \sqrt{a^2 - b^2}}{c - b} = \frac{2(\sqrt{a^2 - b^2})}{c - b}$$

$$1 - \frac{1}{2k} = \dots = \frac{\sqrt{a^2 - b^2} - \sqrt{a^2 - b^2}}{c - b} = \frac{0}{c - b} = 0$$

بما انه  $\frac{2(\sqrt{a^2 - b^2})}{c - b} \neq 0$

$\therefore$  وهو  $c$  مع  $0$ .

$\therefore$  وهو غير قابل.

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السؤال الرابع

$$\boxed{\frac{P}{T} = F} \leftarrow P = F \cdot T \leftarrow \dots = \frac{P}{T} \cdot T = P$$

$$\frac{P \times P}{F} = \frac{P \times F}{F} = \frac{P \times F}{F} = P$$

$$\boxed{c = P} \leftarrow \frac{c}{T} \times T = P \leftarrow \boxed{c = P} \leftarrow \frac{P}{F} = c$$

التاريخ: .....

الحصه: .....

$$p = \frac{p-}{\epsilon} = (1) \leftarrow \frac{p-}{\epsilon(1+p)}$$

$$1 + (1-p) \frac{p-}{\epsilon} = 0 \leftarrow (1-p) \frac{p-}{\epsilon} = 1 - 0 \therefore$$

عندما  $\frac{p-}{\epsilon} = 0$  ←

$$1 + (1-p) \frac{p-}{\epsilon} = 0$$

$$1 + \frac{p-}{\epsilon} = 0 \leftarrow 1 + \frac{p-}{\epsilon} + p \frac{p-}{\epsilon} = 0$$

$$\frac{\epsilon}{p} + 1 = 0 \leftarrow \frac{\epsilon}{p} \times (1 + \frac{p-}{\epsilon}) = 0$$

عندما  $\frac{\epsilon}{p} = 0$  ←

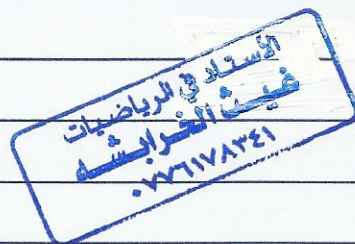
$$1 + (1-0) \frac{p-}{\epsilon} = 0$$

$$1 + \frac{p-}{\epsilon} = 0$$

$$\frac{9}{\epsilon} = \frac{\epsilon+p}{\epsilon} \times \frac{\epsilon+p}{p} \times \frac{1}{\epsilon} = 0 \times 0 \times \frac{1}{\epsilon} = 0 \therefore$$

$$18 = 17 + 0 + 0 \leftarrow 18 = (\epsilon+p) \leftarrow$$

$$0 = 17 + 0 - 0 \leftarrow 0 = (1-p)(\epsilon-p) \leftarrow \{17, 0\}$$



التاريخ: .....

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$$ج) \quad \sqrt[3]{(x^3 - 27)} = (x - 3)$$

$$\sqrt[3]{(x^3 - 27)} = (x - 3) \Rightarrow \frac{x^3 - 27}{\sqrt[3]{(x^3 - 27)}} = \frac{(x - 3)^3}{\sqrt[3]{(x^3 - 27)}} \Rightarrow \frac{x^3 - 27}{\sqrt[3]{(x^3 - 27)}} = (x - 3)$$

منه (x) = 3

$$x^3 - 27 = 0 \Rightarrow x^3 = 27 \Rightarrow x = \sqrt[3]{27} = 3$$

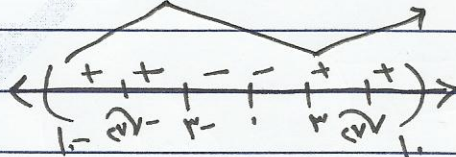
المجال  $x \geq 3$

منه (x) = 3

$$x^3 - 27 = 0 \Rightarrow x^3 = 27 \Rightarrow x = \sqrt[3]{27} = 3$$

$$x^3 - 27 = 0 \Rightarrow x^3 = 27 \Rightarrow x = \sqrt[3]{27} = 3$$

∴ قيم x المحبوبة هي { 3, 3, 3 }

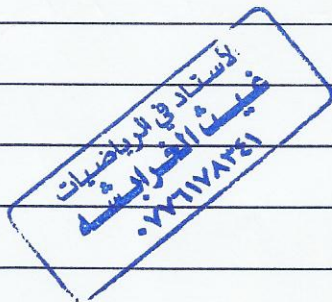


∴ من متزايد على (-∞, 3) و [3, ∞)

و متناقص على [3, ∞)

∴ يوجد عند x = 3 عظمى محلية وهي f(3) = -

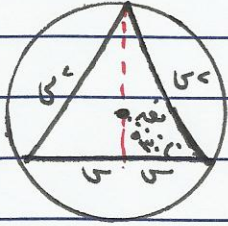
يوجد عند x = 3 صغرى محلية وهي f(3) = -



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السؤال الخامس



$$P) \frac{س}{ر} = \frac{س}{س} = 1$$

(مساحة) (محسورة) = م الدائره - م (مثلث)

$$م = \pi ر^2 - \left( \frac{1}{2} \times س \times س \times \sin(60^\circ) \right)$$

$$م = \pi ر^2 - \frac{\sqrt{3}}{4} س^2$$

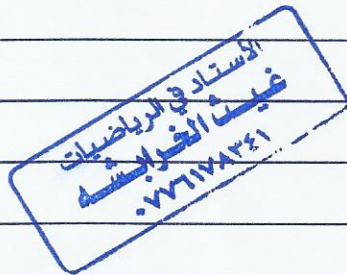
$$\leftarrow \text{جاء } 3^\circ = \frac{س}{ر} \leftarrow \frac{س}{س} = \frac{\sqrt{3}}{2} \leftarrow \frac{س}{ر} = \frac{\sqrt{3}}{2} \text{ زاوية}$$

$$م = \pi ر^2 - \frac{\sqrt{3}}{4} س^2$$

$$م = \left( \frac{\sqrt{3}}{4} س^2 - \pi ر^2 \right) \text{ زاوية}$$

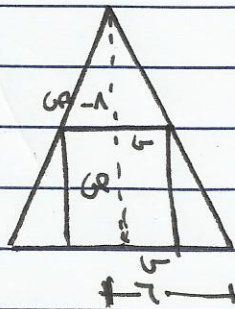
$$\frac{س^2}{4} = \frac{م}{\frac{\sqrt{3}}{4} - \pi} \text{ زاوية}$$

$$س^2 = \frac{م}{\frac{\sqrt{3}}{4} - \pi} \times 4 = 4 \times \frac{م}{\frac{\sqrt{3}}{4} - \pi}$$



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$$(b) \quad 6x \times 6x \times 6x = 2$$

$$6^3 x^3 = 2$$

$$\frac{6x}{6} = \frac{6x-8}{8} \leftarrow$$

$$6x - 8 = 6x - 8 \leftarrow$$

$$6x - 8 = 6x - 8$$

$$6x - \frac{8}{3} = 8 = 6x$$

$$(6x - \frac{8}{3}) \times 6x = 2 \leftarrow$$

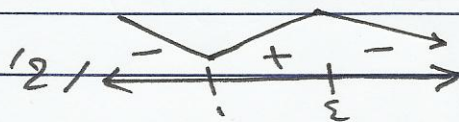
$$6x \cdot \frac{16}{3} - 6x \cdot 8 = 2$$

$$= 6x \cdot 16 - 6x \cdot 8 = 2$$

*Handwritten scribbles and notes.*

$$0 = 6x \leftarrow \cdot = (6x - 8) \cdot 6x$$

$$8 = 6x \leftarrow 8 = \frac{72}{6} = 6x \leftarrow 72 = 6x \cdot 16$$



عظم عند  $x = 6$

$$= (\frac{16}{3} - 8) \cdot 16 \cdot 6 = 2$$

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