مدونة المناهج السعودية

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الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية

Kingdom of Saudi Arabia
Ministry of Education
Prince Sattam University
Preparatory Year Program
Basic Science Department

جامعة الأمير سطام بن عبد العزيز
Prince Sattam Bin Abdulaziz University

المملكة العربية السعودية
وزارة التعليم
جامعة الأمير سطام بن عبدالعزيز
عمادة السنة التحضيريه
قسم العلوم الأساسية

Home Work 6 - MAT1060

	المجموعة		اسم الطالب

EXERCISESET 3.3 1/ Page 121

2) *a) To evaluate* $\int_{-1}^{2} 4x(1-x^2)dx$ *after aproper substitution, we get*

$x=-1 \rightarrow u=0$
$x=2 \rightarrow u=-3$

$\int 4x\, u \cdot \frac{du}{-2x} = -2\int_{0}^{-3} u\,du \quad \Big| \quad u = 1-x^2$
$du = -2x\,dx \rightarrow dx = \frac{du}{-2x}$

A	B	C	D
$-2\int_{0}^{-3} u\,du$	$\int_{0}^{-3} u\,du$	$-2\int_{-3}^{0} u\,du$	*None of them*

b/ The final result of $\int_{-1}^{2} 4x(1-x^2)\,dx$

A	B	C	D
9	-9	6	*None of them*

4) $\int_{1}^{2} \frac{dx}{x^6}$

A	B	C	D
$\frac{13}{106}$	$\frac{1}{6}$	$\frac{31}{160}$	*None of them*

8) $\int_4^9 2x\sqrt{x}\,dx =$ $\int_4^9 2x^{\frac{3}{2}}dx = 2\left[\frac{2}{5}x^{\frac{5}{2}}\right]_4^9 = \frac{844}{5}$

≈ 168.8

≈ 168.8 (~~none of them~~)

A	B	C	D
169	844	168	*None of them*

9) a/ $\int_0^1 (5x+2)^2\,dx$ *after we substitute we get*

$u = 5x+2$
$du = 5\,dx$
$\frac{du}{5} = dx$

$x = 0$
$u = 2$
$x = 1$
$u = 7$

$\int_2^7 u^2 \frac{du}{5} = \frac{1}{5}\int_2^7 u^2\,du$

A	B	C	D
$\int_2^7 u^2 du$	$\frac{1}{5}\int_2^7 u^2 du$	$\int_7^2 u\,du$	*None of them*

b/ *The final result of* $\int_{-1}^{2}(5x+2)^2\,dx$

$\frac{1}{5}\int_2^7 u^2\,du = \frac{1}{5}\left[\frac{u^3}{3}\right]_2^7$

$= \frac{67}{3}$

A	B	C	D
$\frac{7}{3}$	$\frac{67}{3}$	23	*None of them*

$\int_1^3 \frac{1}{x^2}\,dx = \frac{2}{3}$

$\frac{2}{3} = (3-1)\left(\frac{1}{x^2}\right)$

$\frac{2}{3} = \frac{2}{x^2}$ | $2x^2 = 6$ | $x^2 = 3$ | $x = \pm\sqrt{3}$ | $x = \sqrt{3} \in (1,3)$

2/ Page 122

b) The value of x^* that satisfy The mean value theorem for $f(x) = \frac{1}{x^2}$ on [1,3] is $\sqrt{3} = 1.73$

A	B	C	D
1.73	−1.73	3	*None of them*

3/ Page 122

$u = 1 - x$ | $x = -3$, $u = 4$
$du = -dx$ | $x = 0$, $u = 1$
$x = 1 - u$

d) 1/To evaluate $\int_{-3}^{0} x\sqrt{1-x}\,dx$ *after we substitute we get*

$-\int_4^1 (1-u)(u)^{\frac{1}{2}}\,du = \int_1^4 u^{\frac{1}{2}} - u^{\frac{3}{2}}\,du$

A	B	C	D
$\int_1^3 (u^{\frac{3}{2}} - u^{\frac{1}{2}})du$	$\int_4^1 (u^{\frac{3}{2}} - u^{\frac{1}{2}})du$	$\int_1^4 (u^{\frac{5}{2}} - u^{\frac{3}{2}})du$	*None of them*

2/ The final result of $\int_{-3}^{0} x\sqrt{1-x}\,dx$ *is*

A	B	C	D
$\frac{-116}{15}$	$\frac{120}{15}$	$\frac{67}{3}$	*none of them*

f) 1/ $\int \frac{x}{x^2+2} dx =$ ..... $+ c$

$= \frac{1}{2}\int \frac{2x}{x^2+2} dx = \frac{1}{2}\ln|x^2+2| + C$

A	B	C	D
$\frac{1}{2}\ln\|x\|$	$\ln\|x^2+2\|$	$\frac{1}{2}\ln\|x^2+2\|$	*none of them*

2/ *The final result of* $\int_0^2 \frac{x}{x^2+2} dx =$

$= \left[\frac{1}{2}\ln|x^2+2|\right]_0^2$

$= \frac{1}{2}[\ln 6 - \ln 2] = \frac{1}{2}\ln\left|\frac{6}{2}\right| = \frac{1}{2}\ln 3 = \ln\sqrt{3}$

A	B	C	D
$\ln\sqrt{3}$	$\ln 3$	0	*none of them*

4/ *Page* 122

b) $\frac{d}{dx}\left[\int_1^x \frac{dt}{1+\sqrt{t}}\right]$

A	B	C	D
$\frac{t}{1+\sqrt{t}}$	$\frac{1}{1+\sqrt{x}}$	$1+\sqrt{x}$	*none of them*

d) $\frac{d}{dx}\left[\int_0^x \ln y \, dy\right]$

A	B	C	D
$\ln x$	$\ln y$	$\frac{1}{y}$	*none of them*

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.....

A	B	C	D
9	-9	6	*None of them*

4) $\int_{1}^{2} \frac{dx}{x^6}$

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A	B	C	D
$\frac{13}{106}$	$\frac{1}{6}$	$\frac{31}{160}$	*None of them*

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A	B	C	D
169	844	168	*None of them*

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A	B	C	D
$\int_2^7 u^2 du$	$\frac{1}{5}\int_2^7 u^2 du$	$\int_7^2 u\ du$	*None of them*

$b/\ The\ final\ result\ of\ \int_{-1}^2 (5x+2)^2\ dx$

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.....
.....

A	B	C	D
$\frac{7}{3}$	$\frac{67}{3}$	23	*None of them*

2/ *Page* 122

b) The value of x^* *that satisfy The mean value theorem for* $f(x) = \frac{1}{x^2}$ *on* [1,3] *is*

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A	B	C	D
1.73	-1.73	3	*None of them*

3/ *Page* 122

d) 1/To evaluate $\int_{-3}^{0} x\sqrt{1-x}\,dx$ *after we substitute we get*

.....
.....
.....

A	B	C	D
$\int_{1}^{3}(u^{\frac{3}{2}} - u^{\frac{1}{2}})du$	$\int_{4}^{1}(u^{\frac{3}{2}} - u^{\frac{1}{2}})du$	$\int_{1}^{4}(u^{\frac{5}{2}} - u^{\frac{3}{2}})du$	*None of them*

2/ The final result of $\int_{-3}^{0} x\sqrt{1-x}\,dx$ *is*

.....
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A	B	C	D
$\frac{-116}{15}$	$\frac{120}{15}$	$\frac{67}{3}$	*none of them*

$f)\ 1/\ \int \frac{x}{x^2+2}dx = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + c$

.....

.....

.....

A	B	C	D
$\frac{1}{2}\ln\|x\|$	$\ln\|x^2+2\|$	$\frac{1}{2}\ln\|x^2+2\|$	*none of them*

$2/\ The\ final\ result\ of\ \int_0^2 \frac{x}{x^2+2}dx =$

.....

.....

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A	B	C	D
$\ln\sqrt{3}$	$\ln 3$	0	*none of them*

4/ *Page* 122

$b)\ \frac{d}{dx}\left[\int_1^x \frac{dt}{1+\sqrt{t}}\right]$

A	B	C	D
$\frac{t}{1+\sqrt{t}}$	$\frac{1}{1+\sqrt{x}}$	$1+\sqrt{x}$	*none of them*

$d)\ \frac{d}{dx}\left[\int_0^x lny\ dy\right]$

A	B	C	D
lnx	lny	$\frac{1}{y}$	*none of them*