



مدونة المناهج السعودية

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الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية

Home Work 7 - MAT1060

	المجموعة		اسم الطالب
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EXERCISESET 3.4

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7) $\int_{-5}^5 |x+2| dx = \dots\dots\dots$

$$|x+2| = \begin{cases} -(x+2) & x < -2 \\ x+2 & x \geq -2 \end{cases}$$

$$\int_{-5}^{-2} -(x+2) dx + \int_{-2}^5 (x+2) dx = 29$$

A	B	C	D
29	-29	20	None of them

8) $\int_2^8 |x-5| dx = \dots\dots\dots$

$$|x-5| = \begin{cases} -(x-5) & x < 5 \\ (x-5) & x \geq 5 \end{cases}$$

$$\int_2^5 -(x-5) dx + \int_5^8 (x-5) dx$$

A	B	C	D
$\frac{18}{4}$	9	0	None of them

12) $\int_{\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^2 x dx = \dots\dots\dots$

A	B	C	
$\frac{\pi}{4}$	$\frac{\pi}{2}$	0	None of them

EXERCISESET 3.5 1/ Page 140

1) $\int_0^1 \frac{1}{\sqrt{x}} dx = \dots \dots \dots$ $\lim_{b \rightarrow 0^+} \int_b^1 x^{-\frac{1}{2}} dx = \lim_{b \rightarrow 0^+} [2x^{\frac{1}{2}}]_b^1$
 $= 2(1) - 0 = 2$

A	B	C	D
$\frac{1}{4}$	$\frac{1}{2}$	-2	None of them

7) a: The improper integral $\int_{-\infty}^0 \frac{dx}{(4-x)^2} = \dots \dots \dots$

A	B	C	D
$\lim_{a \rightarrow -\infty} \int_a^0 \frac{dx}{(4-x)^2}$	$\lim_{a \rightarrow +\infty} \int_a^0 \frac{dx}{(4-x)^2}$	$\lim_{a \rightarrow -\infty} \int_0^{-\infty} \frac{dx}{(4-x)^2}$	None of them

b: The final result of $\int_{-\infty}^0 \frac{dx}{(4-x)^2} = \dots \dots \dots \lim_{a \rightarrow -\infty} \int_b^0 (4-x)^{-2} dx$
 $= \lim_{b \rightarrow -\infty} \left[\frac{-(4-x)^{-1}}{-1} \right]_b^0 = (4-0)^{-1} - 0 = \frac{1}{4}$

A	B	C	D
$\frac{1}{4}$	$\frac{-1}{4}$	$-\infty$	None of them

10) The improper integral $\int_1^{+\infty} \frac{dx}{x^2} = \dots$

$$\lim_{b \rightarrow \infty} \int_1^b x^{-2} dx = \lim_{b \rightarrow \infty} \left[\frac{x^{-1}}{-1} \right]_1^b$$

$$= 0 - \frac{1}{-1} = 1$$

A	B	C	D
$+\infty$	-1	1	None of them

EXERCISESET 3.5 2/ Page 140

8) a - We can write the improper integral $\int_0^{+\infty} e^{-3x} dx$, as

A	B	C	D
$\lim_{b \rightarrow +\infty} \int_b^0 e^{-3x} dx$	$\lim_{b \rightarrow +\infty} \int_0^b e^{-3x} dx$	$\lim_{b \rightarrow +\infty} \int_a^b e^{-3x} dx$	None of them

9 - a: The final result of $\int_0^{+\infty} e^{-3x} dx$ is

$$= \lim_{b \rightarrow \infty} \left[\frac{e^{-3x}}{-3} \right]_0^b = \left[0 - \frac{e^0}{-3} \right] = \frac{1}{3}$$

A	B	C	D
$\frac{1}{3}$	$-\frac{1}{3}$	$-\infty$	none of them

9 - b: The improper integral $\int_0^{+\infty} e^{5x} dx$ is

$$= \lim_{b \rightarrow \infty} \left[\frac{e^{5x}}{5} \right]_0^b = \infty$$

A	B	C	D
Convergent	Divergent	0	none of them