KING SAUD UNIVERSITY
PREPARATORY YEAR DEANSHIP
BASIC SCIENCE DEPARTMENT

جامعة الملك سعود
King Saud University

MATH - 140

Mid-term Exam (Alternative) 1436/1437 H.
First semester

Time Allowed - 2 Hours

St. Name: [redacted] St. ID: [redacted]
Section:

ملاحظة: أكتب خطوات الحل بالتفصيل لجميع الأسئلة داخل دفتر الإجابة
علما بأن عدد الأسئلة (8) ، وعدد الصفحات (2).

QUESTION 1: (5 Marks: 1+2+ 2)

Solve the followin equations *for* x

$A)\quad 3(x+2) = 3x$

$B)\quad \dfrac{x}{2} - \dfrac{x-4}{3} = 1$

$C)\quad |2x-5| = 3x+1$

QUESTION 2: (4 Marks: 2 +2)

A. Solve the inequality $5(x+2) \geq 3(2x-4)+10$.

B. Solve $\sqrt{(4-2x)^2} \leq 4$, and graph the solution set on the real number line.

QUESTION 3: (4 Marks: 1+1+2)

A. Identify the imaginary part of the complex number $5-3i$

B. Find the conjugate of the complex number $2+3i$

C. Write $\dfrac{3\sqrt{-25}-\sqrt{-49}}{1+i^5}$ in standard form $(a+bi)$ and simplify your answer.

QUESTION 4: (6 Marks:2+ 2 + 2)

A. Solve the equations $x^2+6x=-2$ by completing the square.

B. Evaluate the discriminant for the equation $2x^2-3x+5=0$ and then state the type of its solution (Without solving).

C. The sum of a real number and its reciprocal is $\dfrac{13}{6}$. Find all such numbers.

يتبع P2

QUESTION 5: (4 Marks: 2+2)

Consider the function $f(x)=\frac{3x-6}{1-x}$, $x\neq 1$

A. Find the intercepts of the function $f(x)$

B. Find the inverse of the function $f(x)$

QUESTION 6: (2 Marks)

Let $g(x)=\sqrt{2x-4}$ and $f(x)=3x^2-6$. Find the following:

A. $(f-g)(2)$

B. Domain $(\frac{f}{g})(x)$

QUESTION 7: (2 Mark)

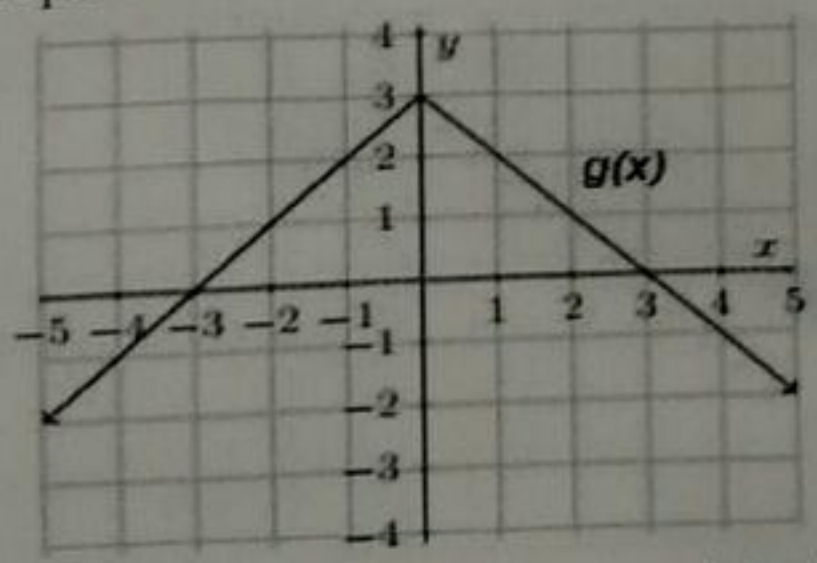
Use the tables below, to find $(f\circ g)(2)$

x	-1		0	1	2	3
$f(x)$	3		5	2	6	1

x	-1	0	1	2	3
$g(x)$	1	2	-1	0	3

QUESTION 8: (3 Marks: 1+1+1)

Use the graph of the function $g(x)$ to answer the following:



A. Identify the interval(s) on which $g(x)$ is increasing and decreasing.

B. Determine whether the function $g(x)$ is even, odd or neither.

C. Determine whether the graph of $g(x)$ is represents a one-to-one function or not.

Good Luck