Kingdom of Saudi Arabia
Ministry of Education
Jazan University
Faculty of Science
Mathematics Department

المملكة العربية السعودية
وزارة التـــعليـــم
جامـــعة جـــازان
كليـة العـــلوم
قسم الرياضيات

Assignment-4

Student Name:———————————— Course Title: General Mathematics.

Due Date: Next Week in Class. Course Code: Math-101.

Answer the following questions.

(Q1.) Put true or false of the following problems. (١) ضع علامة صح أو خطاء للتالي.

1. $(a-b)^2 = a^2 + 2ab + b^2$ (✗).
2. $(a-b)(a+b) = a^2 - b^2$ (✓).
3. $a^2 + 2ab + b^2 = (a+b)^2$ (✓).
4. $a^3 + b^3 = (a+b)(a^2 - 2ab + b^2)$ (✗).
5. $(a+b)^2 = a^2 + ab + b^2$ (✗).
6. If $\frac{2a}{c} = \frac{b}{c}$, and $c \neq 0$, then $a = \frac{b}{2}$ (✓).
7. If $a < b$, and c is a negative, then $\frac{a}{c} < \frac{b}{c}$ (✓).

(Q2.) Write the following inequalities in interval notation and graph on a real line.

(٢) اكتب المتباينات التالية في مفهوم الفترة وارسمها على خط الاعداد.

1. $-2 < x \leq 10$
2. $x \geq 1$
3. $x \leq 3$
4. $\frac{3}{4} < x$
5. $-x < -2$

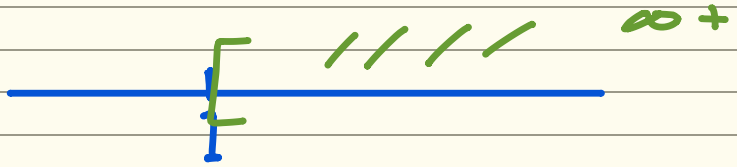
السؤال الثاني

1. $-2 < x \leq 10$

$(-2, 10]$

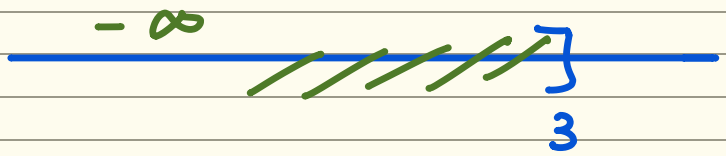
2. $x \geq 1$

$[1, \infty+)$



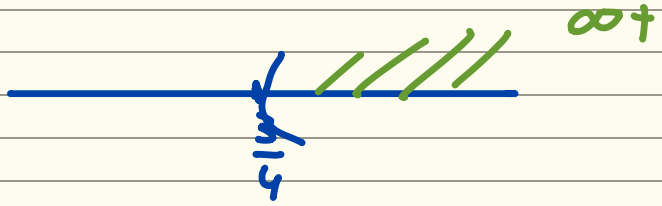
3. $x \leq 3$

$(-\infty, 3]$



4. $\frac{3}{4} < x$

$(\frac{3}{4}, \infty+)$

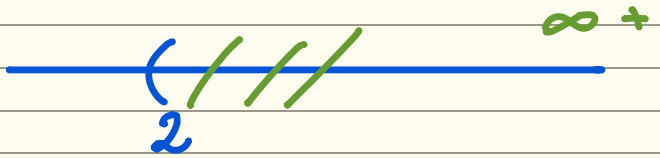


5. $-x < -2$

نقسم على سالب
ونغير اشارة المتباينة

$x > 2$

$(2, \infty+)$



(Q3.) Solve the following inequalities and express the answer in interval notation and graph on a real line.

(٣) حل المتباينات التالية و عبر عنها في مفهوم الفترات وارسمها علي خط الاعداد.

1. $3(2x-2)+21 \leq 3(x+4)$

2. $\frac{2x-3}{4}+6 \geq 2+\frac{4x}{3}$

3. $-2 \leq 4+2x < 8$

4. $-10 < \frac{5(x-4)}{3} < -5$

5. $3-x \geq \frac{1}{5}(5-10x)$

السؤال الثالث

1 $3(2x-2)+21 \leq 3(x+4)$

$6x-6+21 \leq 3x+12$

$6x+15 \leq 3x+12$

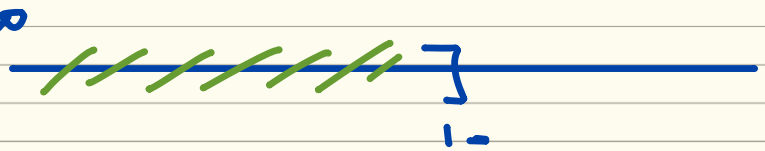
$6x-3x \leq 12-15$

$3x \leq -3$

$\frac{3x}{3} \leq \frac{-3}{3}$

$x \leq -1$

$(-\infty, -1]$



2 $\frac{2x-3}{4}+6 \geq 2+\frac{4x}{3}$

$12\left(\frac{2x-3}{4}\right)+6\cdot 12 \geq 2\cdot 12+12\left(\frac{4x}{3}\right)$

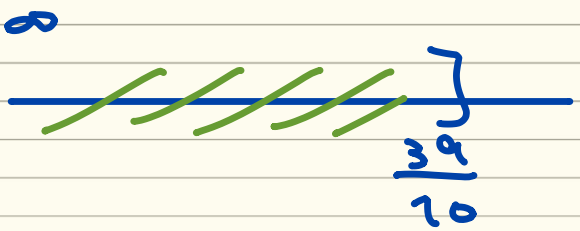
$3(2x-3)+72 \geq 24+4(4x)$

$6x-9+72 \geq 24+16x$

$6x+63 \geq 24+16x$

$63-24 \geq 16x-6x$

$\frac{39}{10} \geq x$ $\quad (-\infty, \frac{39}{10}]$



3 $-2 \leq 4 + 2x < 8$

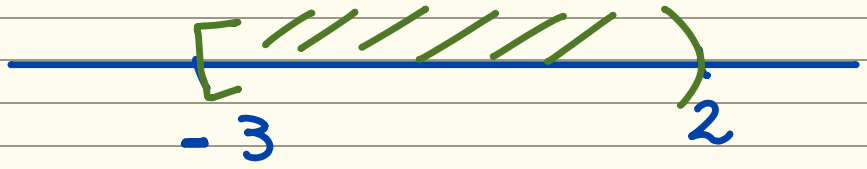
$-2 - 4 \leq 2x < 8 - 4$

$-6 \leq 2x < 4$

$\frac{-6}{2} \leq x < \frac{4}{2}$

$-3 \leq x < 2$

$[-3, 2)$



4 $-10 < \frac{5(x-4)}{3} < -5$

$-10.3 < 5(x-4) < -5.3$

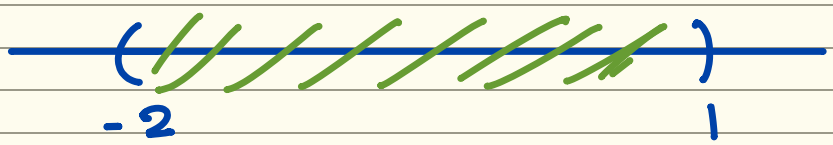
$-30 < 5x - 20 < -15$

$-30 + 20 < 5x < -15 + 20$

$-\frac{10}{5} < 5x < +\frac{5}{5}$

$-2 < x < 1$

$(-2, 1)$



5 $3 - x \geq \frac{1}{5}(5 - 10x)$

$3 - x \geq 1 - 2x$

$-x + 2x \geq 1 - 3$

$x \geq -2$

$[-2, \infty+)$