حل مراجعة الدروس الرابع والخامس والسادس من الوحدة السابعة ريفيل منهج Rational Functions

تاريخ إضافة الملف على موقع المناهج: 27-10-2024 23:42:32

المزيد من مادة رياضيات:	ملفات ا كتب للمعلم ا كتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس

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التواصل الاجتماعي بحسب الصف الحادي عشر المتقدم

صفحة المناهج الإماراتية على فيسبوك					
المواد على تلغرام	التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات	

المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة رياضيات في الفصل الأول

1	حل مراجعة الدرسين الثاني والثالث من الوحدة السابعة Functions Rational منهج ريفيل
2	حل مراجعة الدرس الأول من الوحدة السابعة Functions Rational منهج ريفيل
3	أسئلة الاختبار الأول في الوحدتين الخامسة والسادسة منهج ريفيل
4	ورقة عمل مميزة في الوحدتين الخامسة والسادسة منهج ريفيل

حل مراجعة الدرس الخامس من الوحدة السادسة Functions Logarithmic منهج ريفيل	5

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Lesson: 7.4+7.5+7.6

Ex1: Find the point of discontinuity and classify its types for the function

$$f(x)=\frac{2x^3+10x^2}{x^2+x-20}=\frac{2x^2(x+5)}{(x+5)(x-4)}$$

simplified: $x+5=0 \Rightarrow x=-5$ → Removable (Hole)

not simplified: $x-4=0 \Rightarrow x=4$ → Infinite (vertical asymptote), Non-removable

Ex2: For the following functions find the horizontal asymptotes.

1) $f(x)=\frac{3x^3-10}{5x+6x^2}$ → deg = 3, deg = 2

deg(num) > deg(den)

No H.A

2) $f(x)=\frac{x^2-25}{x^3+3x+7}$ → deg = 2, deg = 3

deg(num) < deg(den)

H.A : $y=0$ (x-axis)

3) $f(x)=\frac{3x^4-25}{6x-2x^4}$ → deg = 4, deg = 4

deg(num) = deg(den)

H.A : $y=\frac{3}{-2}$

$\Rightarrow y=\frac{-3}{2}$

Ex3: For the following function find its Oblique asymptote.

$$f(x)=\frac{2x^4+6x^2-3}{x^3-5}$$

$\deg(num)-\deg(den)=1$

$4-3=1$ ✓ there is an oblique asymptote

$\frac{2x^4}{x^3}=2x$

$2x$

x^3-5 deg=3 | $2x^4+6x^2-3$

$\ominus 2x^4 \oplus 10x$

$6x^2+10x-3$ deg=2

Oblique : $y=2x$

Ex4: For the following function find all asymptotes and points of discontinuity then graph it . $f(x)=\frac{2x^2-5x-3}{x^2-2x-3}=\frac{(x-3)(2x+1)}{(x-3)(x+1)}$

$x-3=0$

$x=3$

Removable Hole

$x+1=0$

$x=-1$

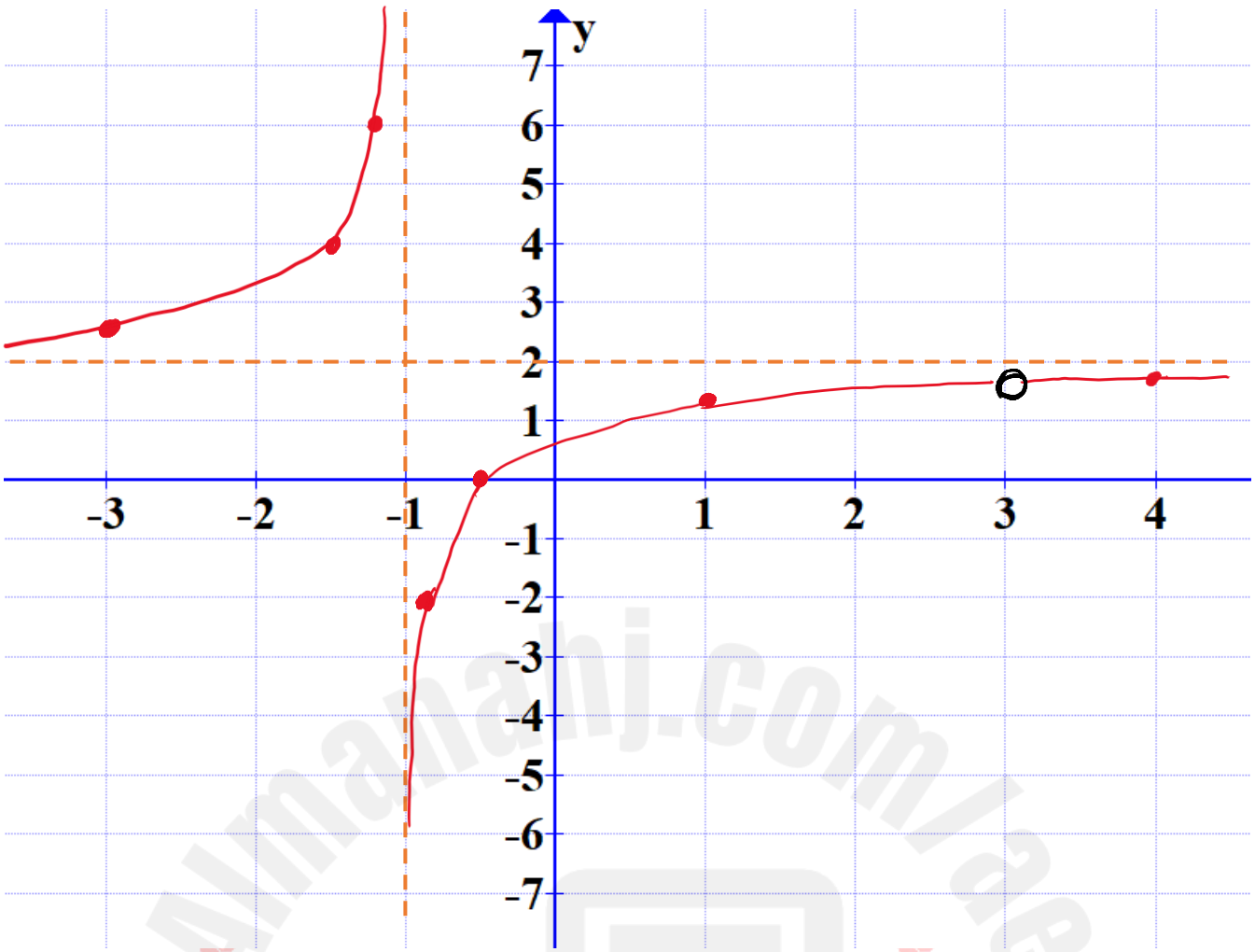
Infinite VA

H.A: $\deg(num)=\deg(den)$

$y=\frac{2}{1}=2 \Rightarrow y=2$

x	-3	-1.5	-1.25	-1	-0.75	-0.5	1	3	4
y	2.5	4	6		-2	0	1.5		1.8

VA Hole



Type of Variation	phrase	simple equation example	practical example	more complicated equations
Direct	"is directly proportional to" "varies directly with"	$y = kx$ y varies directly with x	The radius of the circle lit by a car's light decreases (y) as the distance away from the garage decreases (x).	$y = kx^2$ y varies directly with x^2
Inverse	"varies inversely with"	$y = k/x$ y varies inversely with x	The brightness of a car's lights increases (y) as the distance away from the garage decreases (x).	$y = k/x^3$ y varies inversely with x^3
Joint	"varies jointly (directly) with" "depends upon both . . ."	$y = kxz$ y varies jointly with x and z	The heat loss through a glass window (y) varies jointly with the area of the window (x) and the temperature difference (z) between inside and outside.	$y = kx^3z^2$ y varies jointly with x^3 and z^2
Combined	"varies directly with x and inversely with z"	$y = kx/z$ y varies directly with x and inversely with z	The radius of the circle lit by a car's light decreases (y) as the distance away from the garage decreases (x), but the nervousness of the new driver increases (z) (he's afraid he's going to hit the door)!!!!!!	$y = \frac{k\sqrt{x}}{z^4}$ y varies directly with the sqaure root of x and inversely with z^4

Ex5: If y varies inversely as x, and y = 6 when x = 5, find y when x = 10.

$y = \frac{k}{x}$ ← $k = ?$

$\frac{6}{1} = \frac{k}{5}$

$k = 30$

$y = \frac{30}{x}$

$y = \frac{30}{10} = 3$

Ex6: If y varies jointly as x and z, and y = 120 when x = 4 and z = 6, find y when x is 3 and z is 2

$y = kxz$ ← $k = ?$

$120 = k(4)(6)$

$\frac{120}{24} = \frac{24k}{24}$

$k = 5$

$y = 5xz$

$y = 5(3)(2)$

$y = 30$

Ex7: Suppose x varies directly as y, and x varies inversely as z. Find z when x = 32 and y = 9, if z = 16 when x = 12 and y = 4.

$x = \frac{ky}{z}$ ← $k = ?$

$\frac{16}{4} \cdot 12 = \frac{k(4)}{16} \cdot \frac{16}{4}$

$k = 48$

$x = \frac{48y}{z}$

$\frac{32}{1} = \frac{48(9)}{z}$

$\frac{32z}{32} = \frac{432}{32}$

$z = 13.5$

Ex8: Solve each of the following.

1) $\frac{x}{2x-1}+\frac{3}{x+4}=\frac{21}{2x^2+7x-4}$

$2x-1 = (2x-1)$

$x+4 = (x+4)$

$2x^2+7x-4 = (2x-1)(x+4)$

LCD $=(2x-1)(x+4)$

$\frac{x(2x-1)(x+4)}{(2x-1)}+\frac{3(2x-1)(x+4)}{(x+4)}=\frac{21(2x-1)(x+4)}{(2x-1)(x+4)}$

$x(x+4)+3(2x-1)=21$

$x^2+4x+6x-3=21$ (-21)

$x^2+10x-24=0$

$(x-2)(x+12)=0$

$x-2=0$ $\quad$ $x+12=0$

$x=2$ $\quad$ $x=-12$

Neither of the solutions is a zero for any denominator

$\Rightarrow$ No extraneous solution

Optional (check)

$x=2$

$\frac{x}{2x-1}+\frac{3}{x+4}=\frac{21}{2x^2+7x-4}$

$\frac{2}{2(2)-1}+\frac{3}{2+4}=\frac{21}{2(2)^2+7(2)-4}$

$1.2 = 1.2$ ✓

$x=-12$

$\frac{x}{2x-1}+\frac{3}{x+4}=\frac{21}{2x^2+7x-4}$

$\frac{-12}{2(-12)-1}+\frac{3}{-12+4}=\frac{21}{2(-12)^2+7(-12)-4}$

$0.105 = 0.105$ ✓

Ex9: Solve the inequality $\frac{x-2}{x+2}+\frac{1}{x-2}>\frac{x-4}{x-2}$

$x+2=(x+2)$
$x-2=(x-2)$
$x-2=(x-2)$
LCD $=(x-2)(x+2)$

$$\frac{x-2}{x+2}+\frac{1}{x-2}=\frac{x-4}{x-2}$$

$$\frac{(x-2)\cdot(x-2)(x+2)}{(x+2)}+\frac{1(x-2)(x+2)}{(x-2)}=\frac{(x-4)(x-2)(x+2)}{(x-2)}$$

$$(x-2)(x-2)+1(x+2)=(x-4)(x+2)$$

$$x^2-2x-2x+4+x+2=x^2+2x-4x-8$$

$-x^2$ $\quad -x^2$

$$-3x+6=-2x-8$$

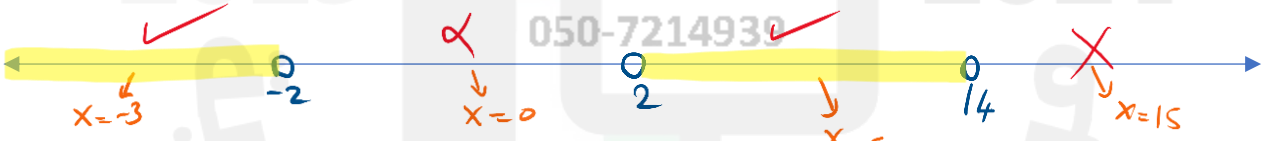
$$-3x+2x=-8-6$$

$$\frac{-1x}{-1}=\frac{-14}{-1}$$

$$x=14$$

also Zeros of deno

$x+2=0 \rightarrow x=-2$
$x-2=0 \quad x=2$



$\frac{x-2}{x+2}+\frac{1}{x-2}>\frac{x-4}{x-2}$

$\frac{-3-2}{-3+2}+\frac{1}{-3-2}>\frac{-3-4}{-3-2}$

$4.8>1.4$ ✓

$\frac{x-2}{x+2}+\frac{1}{x-2}>\frac{x-4}{x-2}$

$\frac{0-2}{0+2}+\frac{1}{0-2}>\frac{0-4}{0-2}$

$-1.5>2$ ✗

$\frac{x-2}{x+2}+\frac{1}{x-2}>\frac{x-4}{x-2}$

$\frac{5-2}{5+2}+\frac{1}{5-2}>\frac{5-4}{5-2}$

$0.76>0.3$ ✓

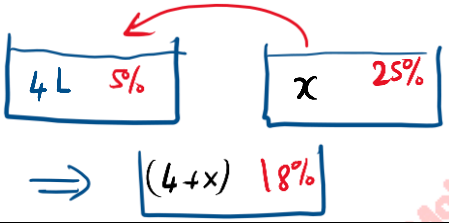
$\frac{15-2}{15+2}+\frac{1}{15-2}>\frac{15-4}{15-2}$

$0.841>0.846$ ✗

Solution $=(-\infty,-2)\cup(2,14)$

Ex10: Suppose that you have a 4L of salted water that is 5% concentrated. How much of a 25% concentrated water should be added to get a final solution of 18% of salt

x



	Original	new	Result
quantity of Liquid	4	x	(4+x)
% of salt	5%	25%	18%
amount of salt	4(0.05) = 0.2	+ 0.25x =	0.2+0.25x

$$\%\ \text{of salt} = \frac{\text{amount of salt}}{\text{quantity of liquid}} = \frac{0.2+0.25x}{4+x} = 18\%$$

Solve this

$$\frac{0.2+0.25x}{4+x} = \frac{18}{100}$$

$$100(0.2+0.25x) = 18(4+x)$$

$$20 + 25x = 72 + 18x$$

$$25x - 18x = 72 - 20$$

$$\frac{7x}{7} = \frac{52}{7}$$

$$x = \frac{52}{7} \approx 7.4\ L$$