وزارة التربية والتعليم و التعليم الفنى
الإدارة المركزية للتعليم العام
إدارة تنمية مادة الرياضيات

برعاية معالي وزير التربية والتعليم و التعليم الفنى
السيد الأستاذ/ محمد عبد اللطيف

وتوجيهات رئيس الإدارة المركزية للتعليم العام

د/ هالة عبد السلام خفاجى

إشراف علمي

مستشار الرياضيات

أ/ منال عزقول

أداءات وتقييمات لمنهج الرياضيات البحتة لغات

للصف الثانى الثانوي "علمى"

الفصل الدراسى الأول

للعام الدراسي 2026 / 2027

الأسبوع العاشر

لجنة الإعداد

د/ محمد عبد العاطى أ/ محمد الفار أ/ عفاف جاد

ترجمة

أ/ عمرو فاروق

مراجعة الترجمة

أ/ شريف البرهامى

Exercises on exponential function and its applications

1) If the point A (2, 9) belongs to the curve of the function $f : f(x) = \left(\frac{1}{2}\right)^{3x-8} + k$ then find the value of k

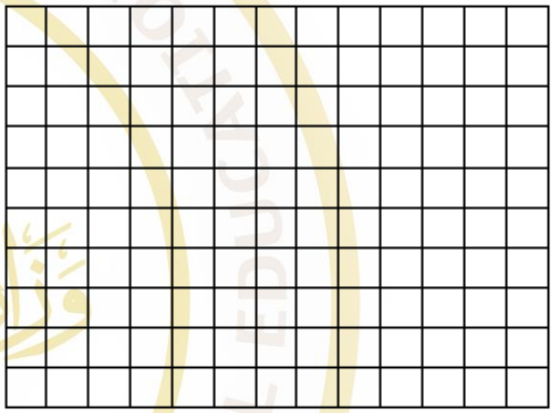
Solu: .....

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2) Graph the function $f : f(x) = (3)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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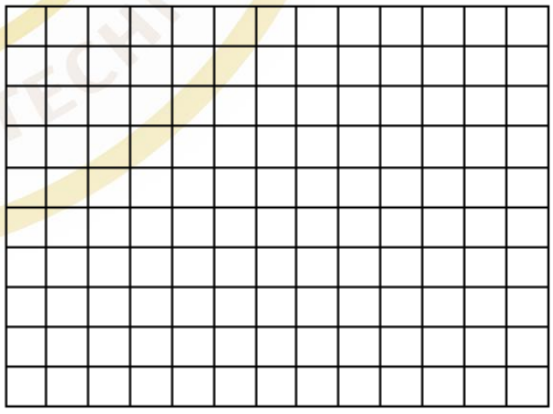
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3) Graph the function $f : f(x) = -\left(\frac{1}{2}\right)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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4) Graph the function f: $f(x) = -(2)^x + 2$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu: .....

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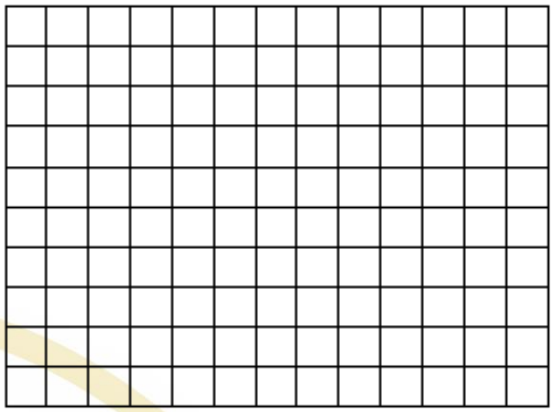
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5) Graph the function f : $f(x) = (3)^{x+1}$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu: .....

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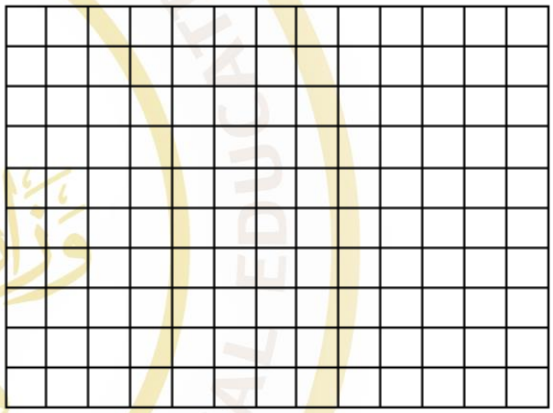
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6) Graph the function f: $f(x) = (\frac{1}{2})^{x-2} - 1$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu: .....

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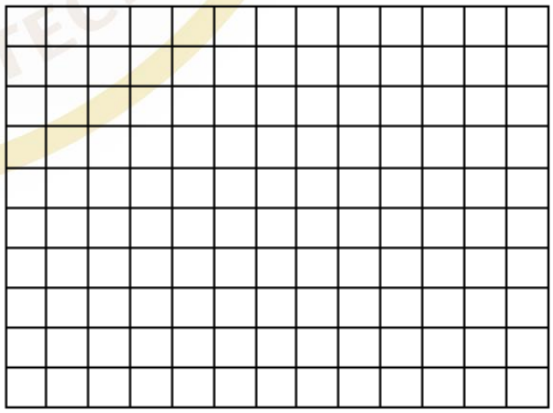
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Calculus: Exercises on Limits of trigonometric functions

7) Find: $\lim\limits_{x\to 0} \frac{4}{x} \sin\frac{x}{2}$

Solu: .....

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8) Find: $\lim\limits_{x\to 0} \frac{\sin x\ (1-\cos x)}{x^2}$

Solu: .....

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Exercises on Finding the measure of an angle of a triangle given the lengths of its sides

9) ABC is a triangle in which : a = 7 cm , b = 6 cm , c = 9 cm , find m (∠ B).

Solu: .....

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10) In Δ ABC: $\frac{1}{3}\sin A = \frac{1}{5}\sin B = \frac{1}{7}\sin C$, find m (∠ C).

Solu: .....

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Exercises on exponential function and its applications

1) If the point A (1 , 7) belongs to the curve of the function $f : f(x) = \left(\frac{1}{3}\right)^{2x-3} + k$ then find the value of k

Solu: .....

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2) Graph the function $f : f(x) = (2)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu: .....

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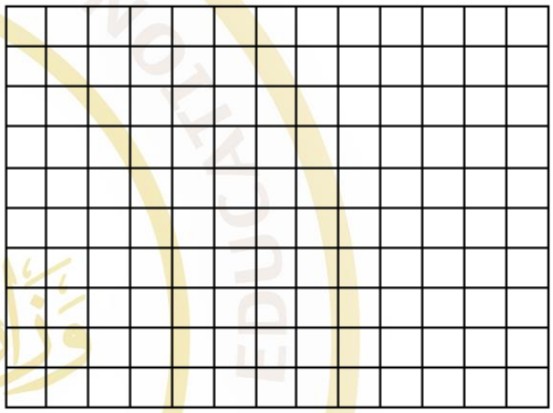
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3) Graph the function $f : f(x) = -\left(\frac{1}{3}\right)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu: .....

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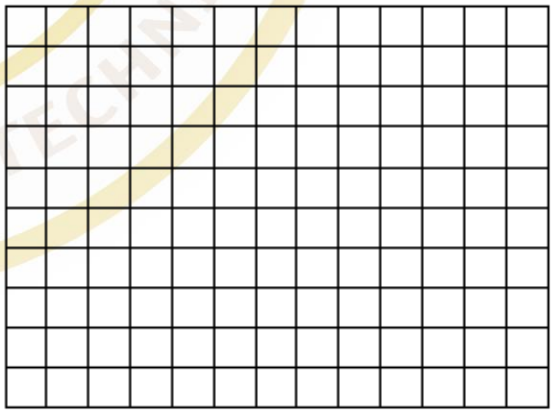
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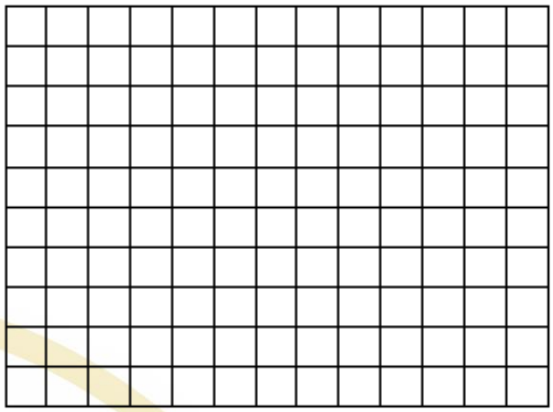
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4) Graph the function f: $f(x) = -(3)^x + 1$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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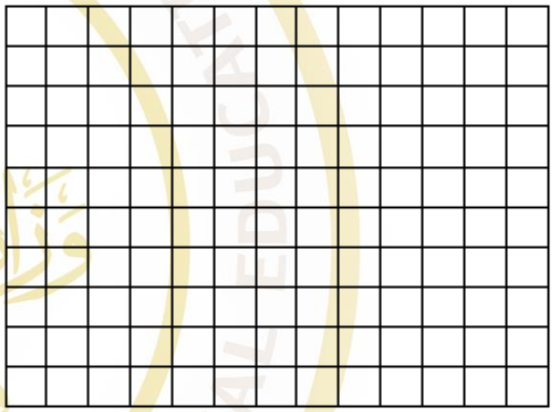
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5) Graph the function f : $f(x) = (2)^{x-1}$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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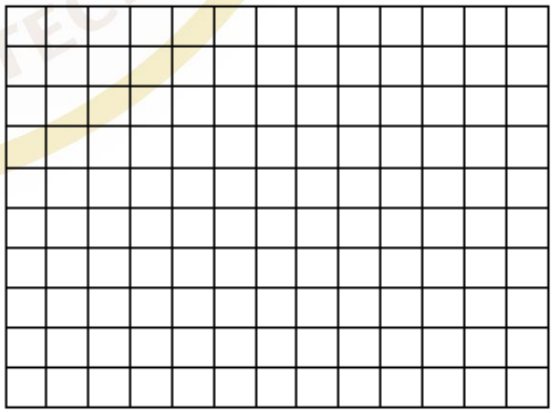
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6) Graph the function f: $f(x) = (\frac{1}{2})^{x+2} + 1$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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Calculus: Exercises on Limits of trigonometric functions

7) Find: $\lim_{x\to 0} \frac{6}{x} \sin \frac{x}{3}$

Solu: .....

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8) Find: $\lim_{x\to 0} (1 - \cos x) \cot x$

Solu: .....

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Exercises on Finding the measure of an angle of a triangle given the lengths of its sides

9) ABC is a triangle in which : a = 8 cm , b = 9 cm , c = 10 cm , find m (∠ B).

Solu: .....

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10) In Δ ABC: $\frac{1}{4} \sin A = \frac{1}{5} \sin B = \frac{1}{7} \sin C$, find m (∠ C).

Solu: .....

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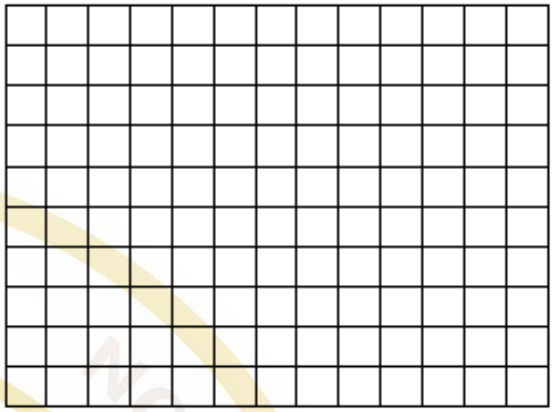
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The First Group

1) Graph the function f: f $(x) = -(2)^{x}$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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2) If the point A (2, 9) belongs to the curve of the function f : f $(x) = (\frac{1}{2})^{3x-8} + k$ then find the value of k

Solu: .....

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3) Find: $\lim\limits_{x \to 0} \frac{tan\ 2x^2 + sin^2 x}{x^2}$

Solu: .....

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4) Find: $\lim\limits_{x \to 0} \frac{tan\ 2x^2 - 3\ sin^2 x}{x^2}$

Solu: .....

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5) In Δ ABC if : a = 5 cm , b = 6 cm , c = 8 cm , , find m (∠ B).

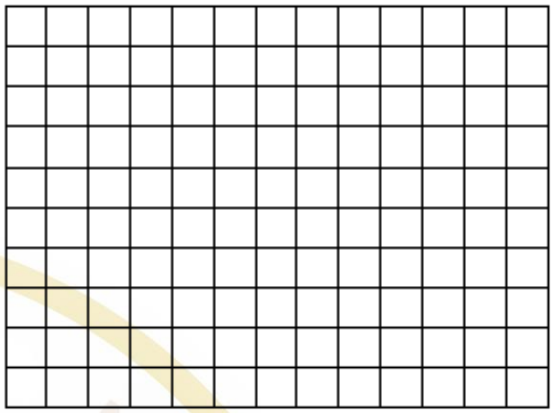
Solu: .....

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The Second Group

1) Graph the function f: f $(x) = -\left(\frac{1}{2}\right)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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2) If the point A (1 , 7) belongs to the curve of the function f : f $(x) = \left(\frac{1}{3}\right)^{2x-3} + k$ then find the value of k

Solu: .....

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3) Find: $\lim\limits_{x \to 0} \frac{\tan 2x^2 - 3\sin^2 x}{x^2}$

Solu: .....

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4) Find: $\lim\limits_{x \to 0} \frac{\tan 7x^2 + 2\sin^2 x}{x^2}$

Solu: .....

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5) In Δ ABC if : a = 10 cm , b = 11 cm , c = 13 cm , , find m (∠ B).

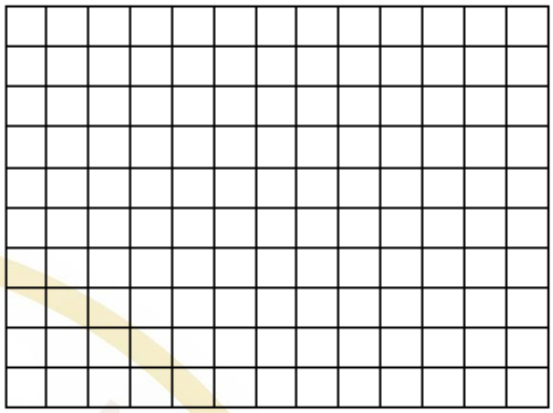
Solu: .....

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The Third Group

1) Graph the function f: f $(x) = -(3)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.



Solu: .....

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2) If the point A (2, 9) belongs to the curve of the function f : f $(x) = \left(\frac{1}{2}\right)^{3x-8} + k$ then find the value of k

Solu: .....

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3) Find: $\lim_{x \to 0} \frac{tan\ 7x^2 + 2\ sin^2 x}{x^2}$

Solu: .....

.....

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4) Find: $\lim_{x \to 0} \frac{tan\ 2x^2 - 3\ sin^2 x}{x^2}$

Solu: .....

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5) In Δ ABC if : a = 3 cm , b = 6 cm , c = 8 cm , , find m (∠ B).

Solu: .....

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