



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

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

وتوجيهات رئيس الإدارة المركزية للتعليم العام

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إشراف علمي
مستشار الرياضيات
أ/ منال عزقول

أداءات وتقييمات لمنهج الرياضيات البحتة لغات

للفص الثاني الثانوي "علمي"
الفصل الدراسي الأول
للعام الدراسي 2025 / 2026

الأسبوع التاسع

لجنة الإعداد

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مراجعة الترجمة

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9 الرياضيات البحتة لغات - للصف الثاني الثانوي علمي الأداء الصفی الأسبوع التاسع 9

Exercises on exponential function and its applications

1) Find in the simplest form each of:

a) $\sqrt[3]{-64 a^9 b^{12}}$

b) $\sqrt[4]{81 x^{12} y^{16}}$

c) $\sqrt{\frac{1}{16} x^6 y^{10}}$

Solu:

2) Determine which of the following is an exponential function, then write its exponent and its base:

a) $f(x) = \frac{6}{5} (2)^x$

b) $f(x) = (-3)^x$

c) $f(x) = \left(\frac{1}{5}\right)^x - 1$

Solu:

3) If the function $f: f(x) = 3^x$

Find each of the following : $f(-1)$, $f(2)$, $f(x-1)$, $f(x) \times f(-x)$

Solu:

4) 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:



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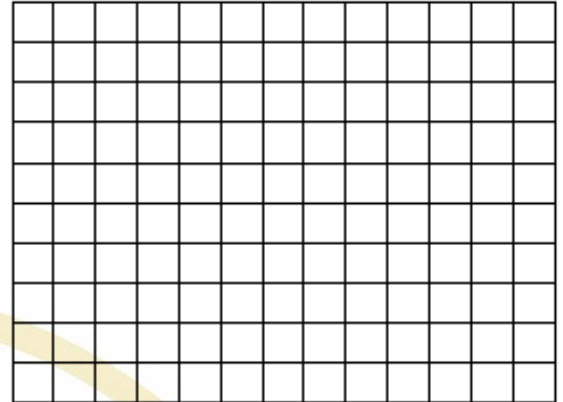
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6) Graph the function $f : f(x) = -\left(\frac{1}{2}\right)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

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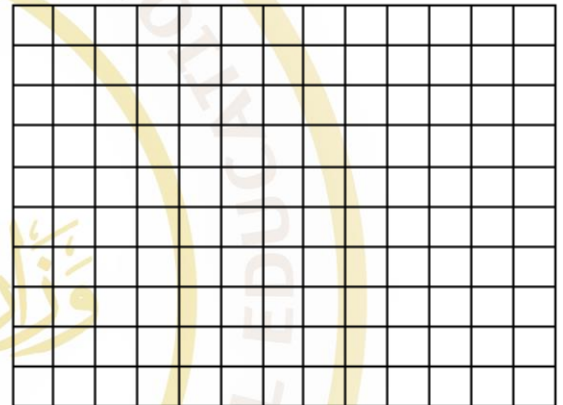
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7) Graph the function $f : f(x) = -(2)^x + 2$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

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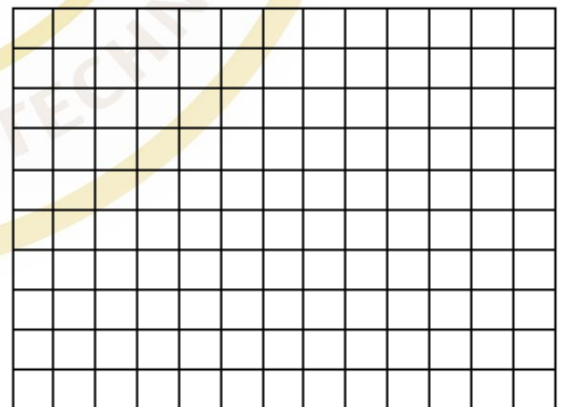
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8) Graph the function $f: f(x) = (3)^{x+1}$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

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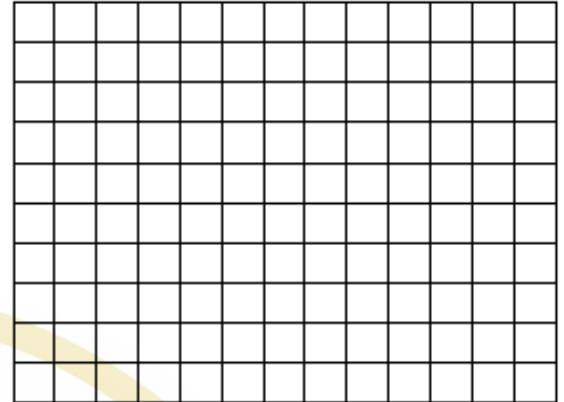
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9) Graph the function $f: f(x) = \left(\frac{1}{2}\right)^{x-2} - 1$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

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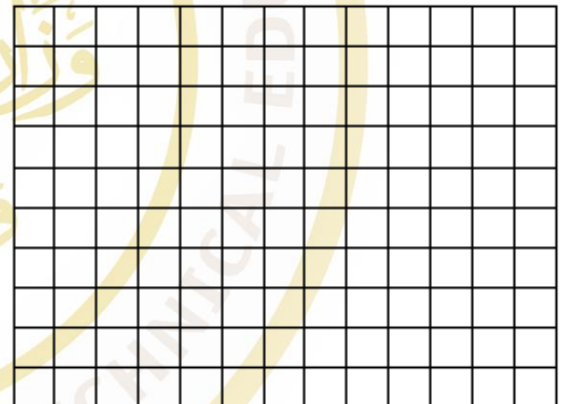
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Calculus: Exercises on Limits of trigonometric functions

10) Find: $\lim_{x \rightarrow 0} \frac{4}{x} \sin \frac{x}{2}$

Solu:

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11) Find: $\lim_{x \rightarrow 0} \frac{\sin x (1 - \cos x)}{x^2}$

Solu:

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

Solu:

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

13) ABC is a triangle in which : $a = 7 \text{ cm}$, $b = 6 \text{ cm}$, $c = 9 \text{ cm}$, find $m(\angle B)$.

Solu:

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14) In ΔABC : $\frac{1}{3} \sin A = \frac{1}{5} \sin B = \frac{1}{7} \sin C$, find $m(\angle C)$.

Solu:

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15) ABC is a triangle in which : $a = 11 \text{ cm}$, $b = 6 \text{ cm}$, $c = 10 \text{ cm}$, find the circumference of the circumcircle of the triangle ABC to the nearest centimeter.

Solu:

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Exercises on exponential function and its applications

1) Find in the simplest form each of:

a) $\sqrt[3]{-27 a^3 b^6}$

b) $\sqrt[4]{16 x^4 y^8}$

c) $\sqrt[5]{32 x^5 y^{15}}$

Solu:

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2) Determine which of the following is an exponential function, then write its exponent and its base:

a) $f(x) = \frac{8}{9} (3)^x$

b) $f(x) = (-4)^x$

c) $f(x) = \left(\frac{1}{2}\right)^{x-1}$

Solu:

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3) If the function $f : f(x) = 2^x$

Find each of the following : $f(-2)$, $f(3)$, $f(x+1)$, $f(x) \times f(-x)$

Solu:

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4) 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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5) 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:

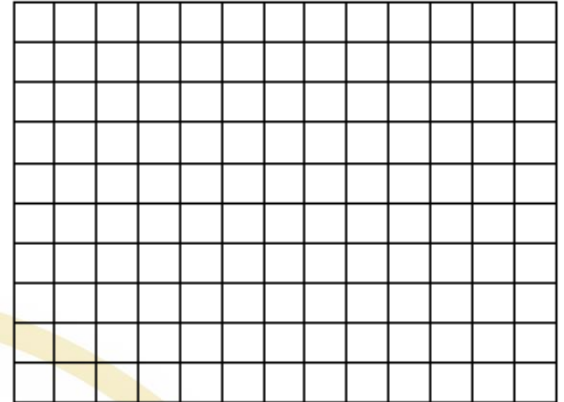
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6) Graph the function $f : f(x) = -\left(\frac{1}{3}\right)^x$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

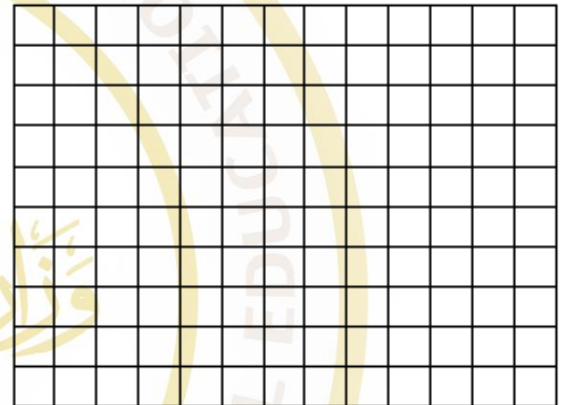
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7) Graph the function $f : f(x) = -(3)^x + 1$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

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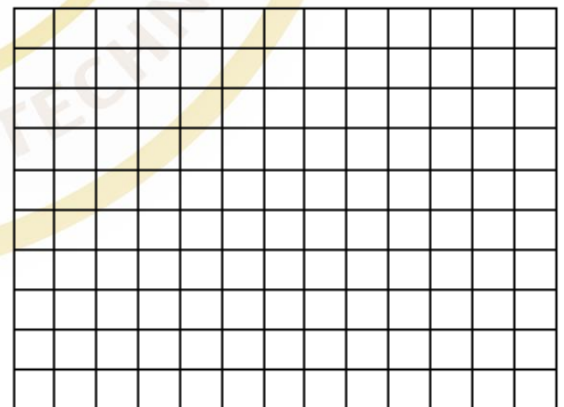
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8) Graph the function $f : f(x) = (2)^{x-1}$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

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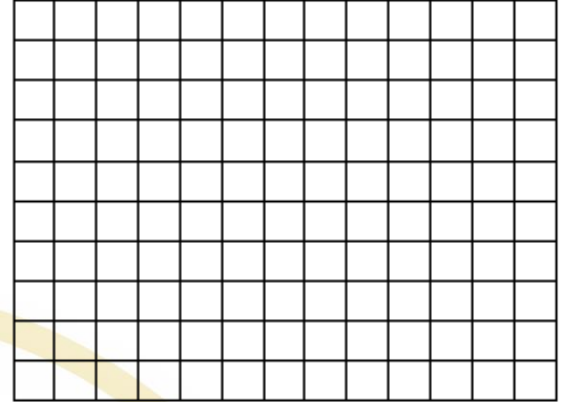
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9) Graph the function $f : f(x) = \left(\frac{1}{2}\right)^{x+2} + 1$, from the graph deduce its domain, its range, discuss if it is increasing or decreasing and mention if it is one to one or not.

Solu:

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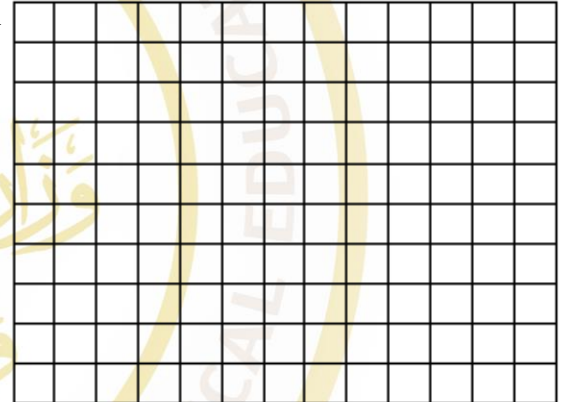
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Calculus: Exercises on Limits of trigonometric functions

10) Find: $\lim_{x \rightarrow 0} \frac{6}{x} \sin \frac{x}{3}$

Solu:

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11) Find: $\lim_{x \rightarrow 0} (1 - \cos x) \cot x$

Solu:

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12) Find: $\lim_{x \rightarrow 0} \frac{\sin 5x^2 + \tan^2 3x}{x^2}$

Solu:

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

13) ABC is a triangle in which : $a = 8 \text{ cm}$, $b = 9 \text{ cm}$, $c = 10 \text{ cm}$, find $m(\angle B)$.

Solu:

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14) In ΔABC : $\frac{1}{4} \sin A = \frac{1}{5} \sin B = \frac{1}{7} \sin C$, find $m(\angle C)$.

Solu:

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15) ABC is a triangle in which : $a = 12 \text{ cm}$, $b = 7 \text{ cm}$, $c = 8 \text{ cm}$, find the circumference of the circumcircle of the triangle ABC to the nearest centimeter.

Solu:

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٩ الرياضيات البحتة لغات - للصف الثاني الثانوي علمي التقييمات الأسبوعية الأسبوع التاسع ٩

The First Group

1) If the function $f : f(x) = \left(\frac{1}{3}\right)^x$

Find each of the following : $f(-2)$, $f(3)$, $f(x+2)$, $f(x) \times f(-x)$

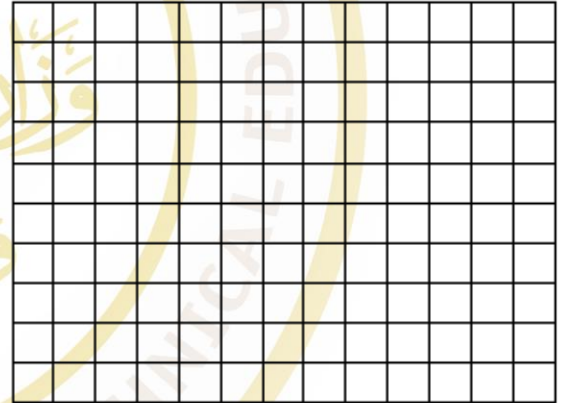
Solu:

2) If the point A (4 , 30) belongs to the curve of the function $f : f(x) = \left(\frac{1}{5}\right)^{x-6} + k$
then find the value of k

Solu:

3) 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:



4) Find: $\lim_{x \rightarrow 0} \frac{\tan 2x^2 + \sin^2 x}{x^2}$

Solu:

5) In ΔABC if : $a = 5$ cm , $b = 6$ cm , $c = 8$ cm , , find $m(\angle B)$.

Solu:

The Second Group

1) If the function $f : f(x) = \left(\frac{1}{5}\right)^x$

Find each of the following : $f(-1)$, $f(2)$, $f(x-2)$, $f(x) \times f(-x)$

Solu:

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2) If the point A $(-1, 15)$ belongs to the curve of the function $f : f(x) = (3)^{4x+6} + k$
then find the value of k

Solu:

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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.

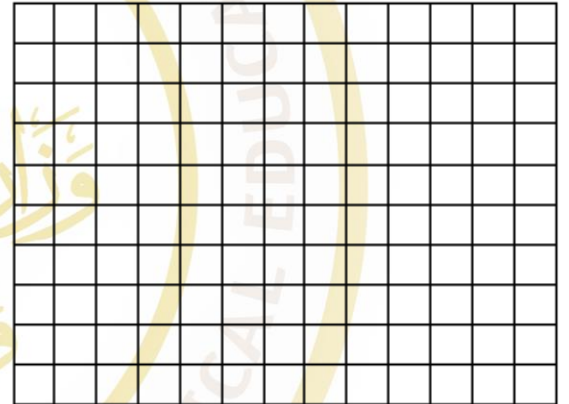
Solu:

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

Solu:

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5) In ΔABC if : $a = 10$ cm , $b = 11$ cm , $c = 13$ cm , , find $m(\angle B)$.

Solu:

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The Third Group

1) If the function $f: f(x) = \left(\frac{1}{4}\right)^x$

Find each of the following : $f(-1)$, $f(3)$, $f(x-1)$, $f(x) \times f(-x)$

Solu:

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2) If the point A $(-1, 10)$ belongs to the curve of the function $f: f(x) = (2)^{3x+5} + k$
then find the value of k

Solu:

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

Solu:

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5) In ΔABC if : $a = 3 \text{ cm}$, $b = 6 \text{ cm}$, $c = 8 \text{ cm}$, , find $m(\angle B)$.

Solu:

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