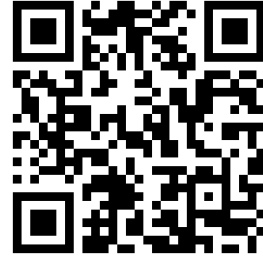


تم تحميل هذا الملف من موقع المناهج الإماراتية



الملف أوراق عمل الدرس الأول من الوحدة الخامسة Exponential Graphing Functions

موقع المناهج ← المناهج الإماراتية ← الصف الثاني عشر المتقدم ← رياضيات ← الفصل الأول

روابط مواقع التواصل الاجتماعي بحسب الصف الثاني عشر المتقدم



روابط مواد الصف الثاني عشر المتقدم على تلغرام

[الرياضيات](#)

[اللغة الانجليزية](#)

[اللغة العربية](#)

[التربية الاسلامية](#)

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

[ملخص شامل لقواعد وقوانين الفصل الأول](#)

1

[حل أوراق عمل مراجعة 500 سؤال وحدة النهايات والاتصال](#)

2

[أوراق عمل الدرس الخامس النهايات التي تتضمن اللانهاية من وحدة النهايات والاتصال](#)

3

[شرح ومراجعة الوحدة الثالثة الجهد الكهربائي مع تدريبات محلولة](#)

4

[أوراق عمل الدرس الرابع الاتصال ونتائجه من وحدة النهايات والاتصال](#)

5



Mr. Ahmed Ata
The Featured Program

5-1

2023
2024

Graphing Exponential Functions

جميع الحفظ مجانية

Mr. Ahmed Ata

Student Name

Section

Grade11
ADV
Reveal

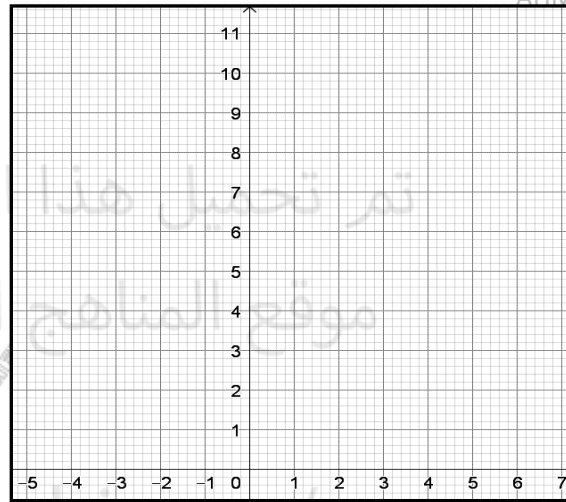
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Lesson 5-1

Graphing Exponential Functions

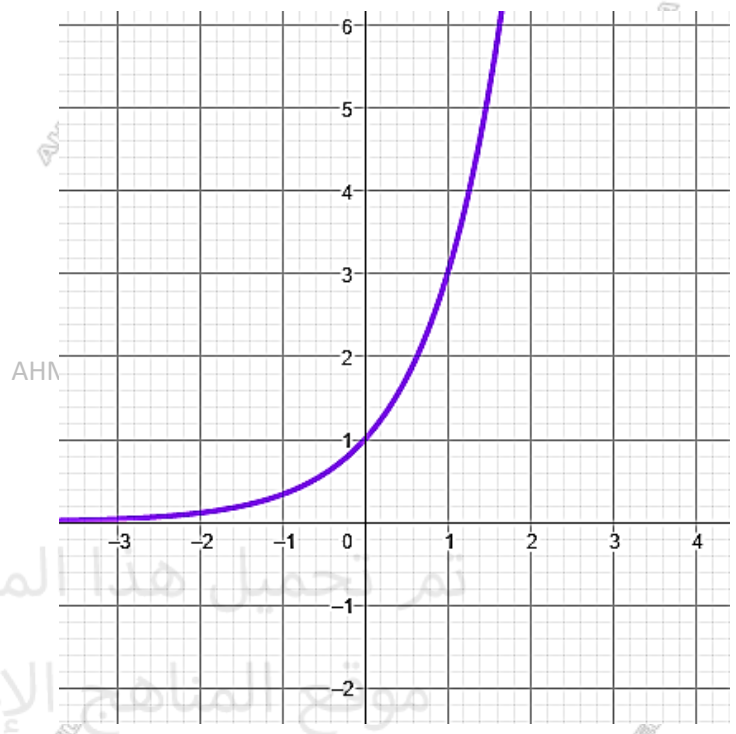
- 1 Graph $f(x) = 2^x$. Find the domain, range, y-intercept, asymptote, and end behavior.

x	$f(x) = 2^x$
-3	
-2	
-1	
0	
1	
2	
3	



Graph Transformations of Exponential Growth Functions

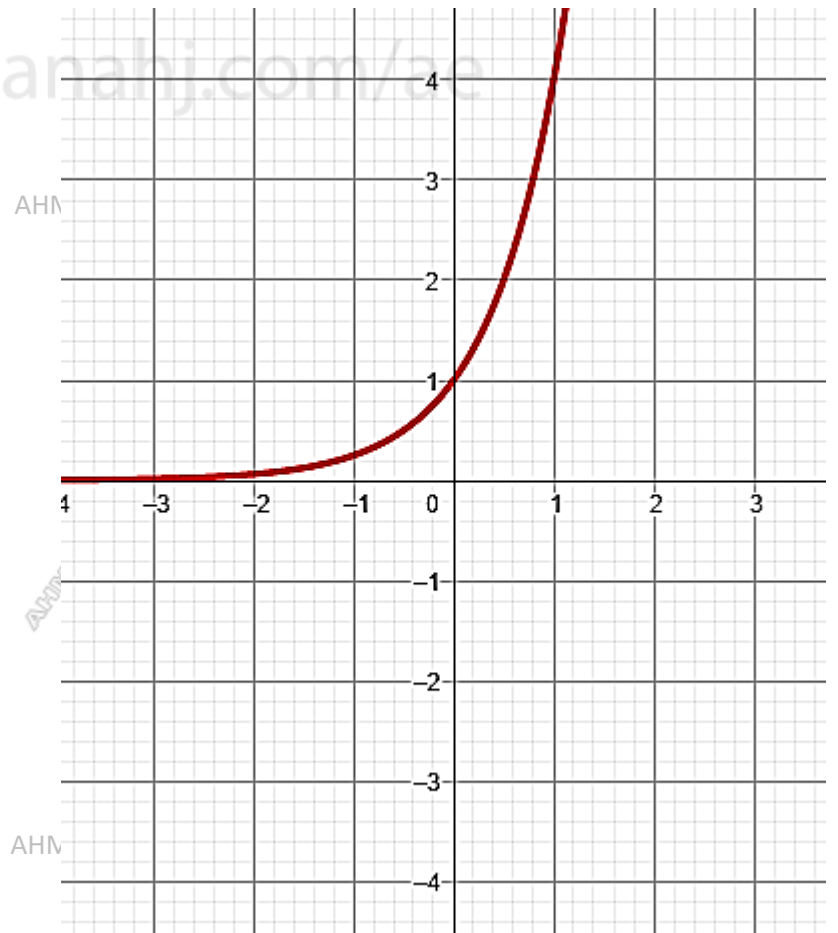
2 $f(x) = 2(3)^x$



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3 $f(x) = -2(4)^x$



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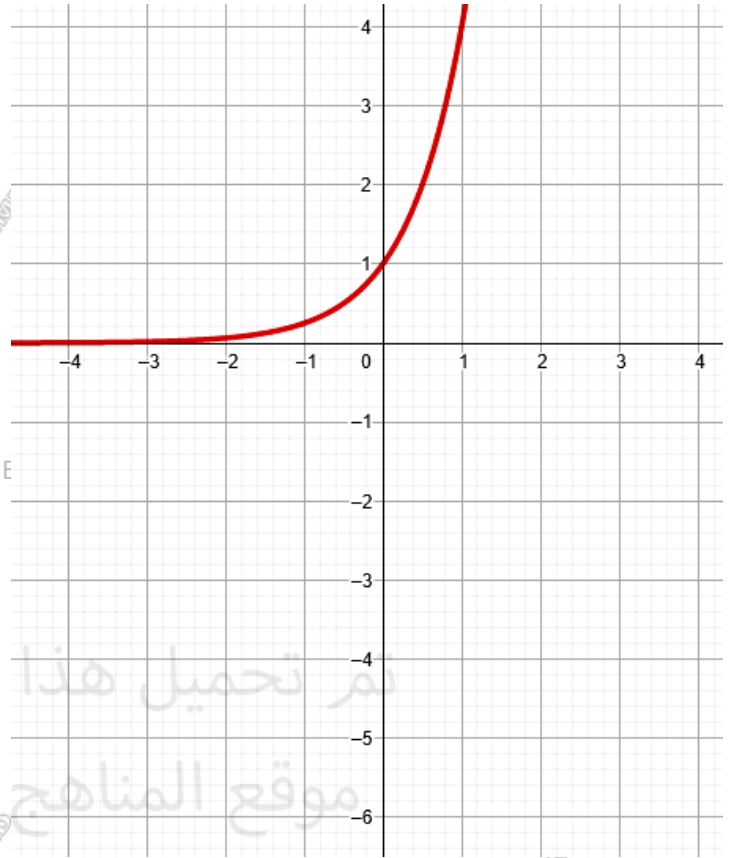
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4

$$f(x) = 4^{x+1} - 5$$

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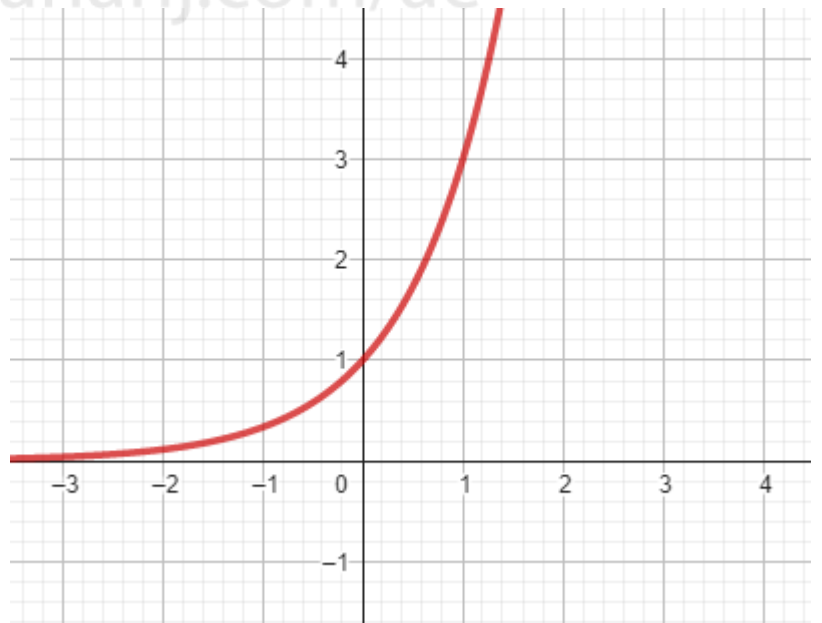
5

$$f(x) = 3^{2x} + 1$$

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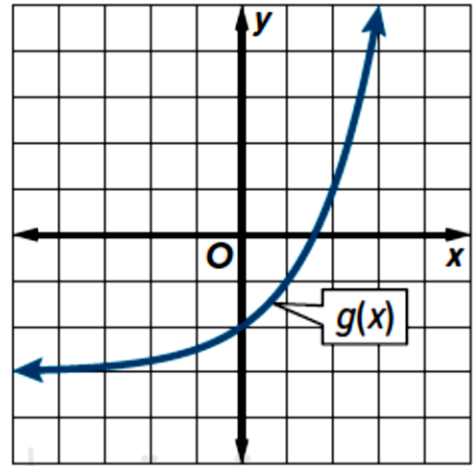
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Identify the value of k and write a function $g(x)$ for each graph as it relates to $f(x)$.

6

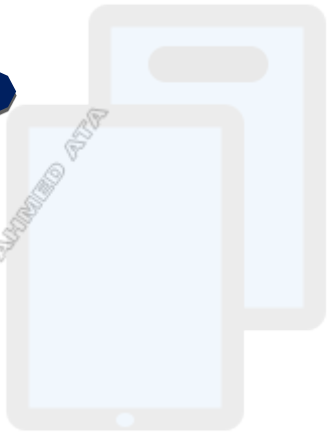
$f(x) = 2^x; g(x) = f(x) + k$



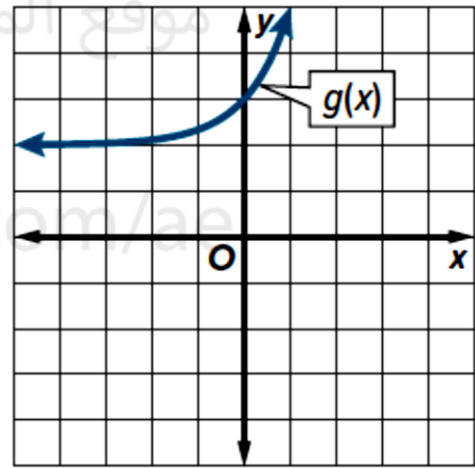
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7



$f(x) = 3^x; g(x) = f(x) + k$



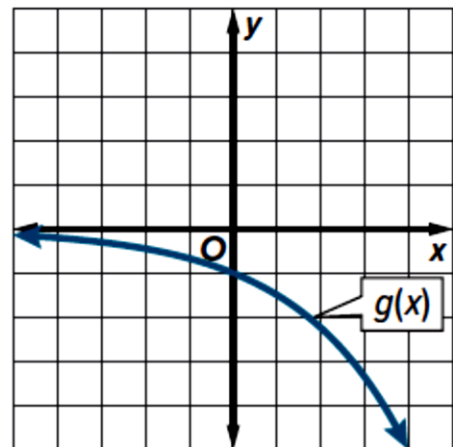
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$f(x) = \left(\frac{3}{2}\right)^x; g(x) = k \cdot f(x)$



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Exponential growth can be modeled by $A(t) = a(1 + r)^t$, where $A(t)$ represents the amount after t time periods, a is the initial amount, and r is the percent of increase per time period. The **growth factor** is $1 + r$.

- 9 **LOTTERY** Mr. Lopez recently won the lottery. Suppose he takes the lump-sum payment, and he invests \$50 million into an account that yields 5% interest annually. estimate the amount in the account after 20 years.



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- 10 **SHOES** The cost of a pair of athletic shoes increases about 5.1% every year. In 2018 the average price for a pair of athletic shoes was \$58.17. Then estimate the cost of a an average pair of shoes in 25 years.

- 11 **MONEY** Sunil opened a savings account that compounds interest at a rate of 3% annually. Let P be the initial amount Sunil deposited, and let t be the number of years the account has been open.
- a. Write an equation to find A , the amount of money in the account after t years. Assume that Sunil made no more deposits and no withdrawals.

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- b. If Sunil opened the account with \$500 and made no deposits or withdrawals, Then estimate the amount of money in the account 10 years after opening the account.

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- c. Estimate the number of years it would take for such an account to double in value.

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Exponential decay occurs when an initial amount decreases by the same percent over a given period of time. So, for an exponential function of the form $f(x) = b^x$, exponential decay occurs when b is between 0 and 1.

Like exponential growth, exponential decay can be modeled by $A(t) = a(1 - r)^t$, where r is the percent of decrease per time period. The **decay factor** is $1 - r$.

12 Determine whether each function represents *exponential growth* or *exponential decay*.

a. $f(x) = 5^x$

b. $g(x) = \left(\frac{2}{7}\right)^x$

c. $h(x) = \left(\frac{4}{3}\right)^x$

d. $j(x) = 1.05^x$

e. $k(x) = 0.85^x$

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- 13 Graph $f(x) = \left(\frac{1}{2}\right)^x$. Find the domain, range, y-intercept, asymptote, and end behavior.

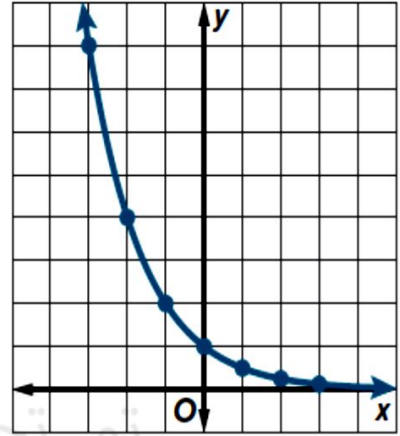
Make a table of values. Then plot the points and sketch the graph.

domain: all real numbers

range: all positive real numbers

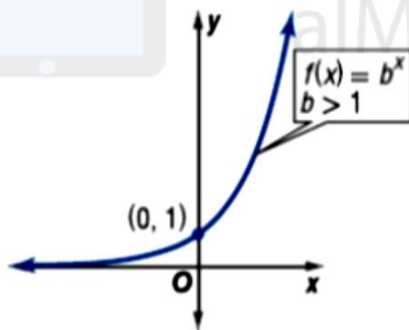
y-intercept: $(0, 1)$ asymptote: $y = 0$

end behavior: as $x \rightarrow -\infty$,
 $f(x) \rightarrow \infty$ and as $x \rightarrow \infty$, $f(x) \rightarrow 0$



KeyConcept Properties of Exponential Functions

Exponential Growth



Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

y-Intercept: 1

x-Intercept: none

Extrema: none

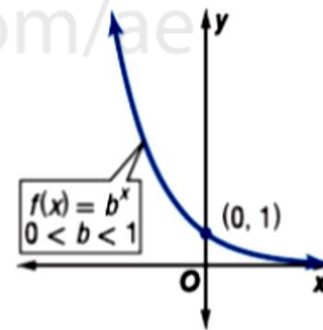
Asymptote: x-axis

End Behavior: $\lim_{x \rightarrow -\infty} f(x) = 0$

and $\lim_{x \rightarrow \infty} f(x) = \infty$

Continuity: continuous on $(-\infty, \infty)$

Exponential Decay



Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

y-Intercept: 1

x-Intercept: none

Extrema: none

Asymptote: x-axis

End Behavior: $\lim_{x \rightarrow -\infty} f(x) = \infty$

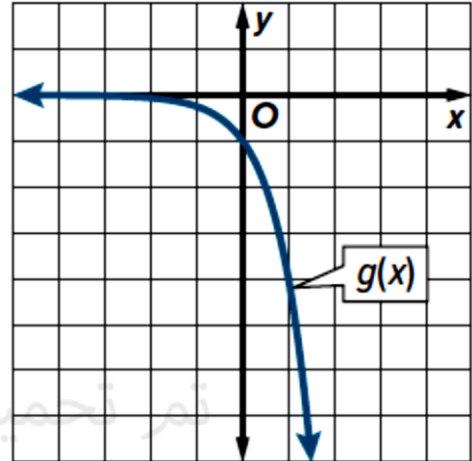
and $\lim_{x \rightarrow \infty} f(x) = 0$

Continuity: continuous on $(-\infty, \infty)$

$f(x)$ is the parent function and $g(x)$ is a transformation of $f(x)$. Use the graph to determine $g(x)$.

14

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



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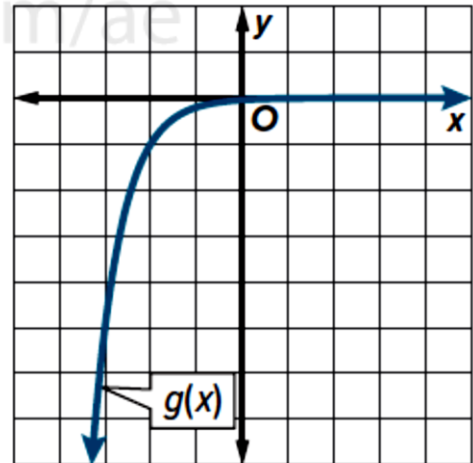
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15



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



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16

CARS The value of an automobile depreciates by approximately 15% each year after purchase. Jayden paid \$28,000 when he bought his car 15 years ago.

- Write and graph a function that models how the value of the car depreciates.
- How does the average decrease in value during the first five years of ownership

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