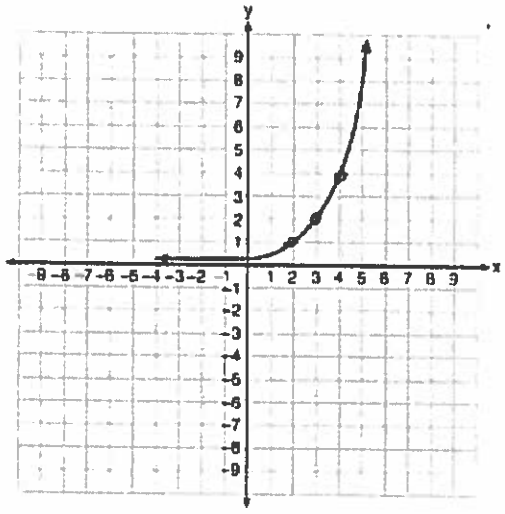
Name KEY

EQUATIONS 1

Write an exponential equation for the graph shown below.



Explain how you determined the equation.

x	y	
2	1	×2
3	2	×2
4	4	

I did an exponential regression on my calculator.

$y = 0.25(2)^x$

An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data. Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the nearest download. Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

$y = 80(1.5)^x$

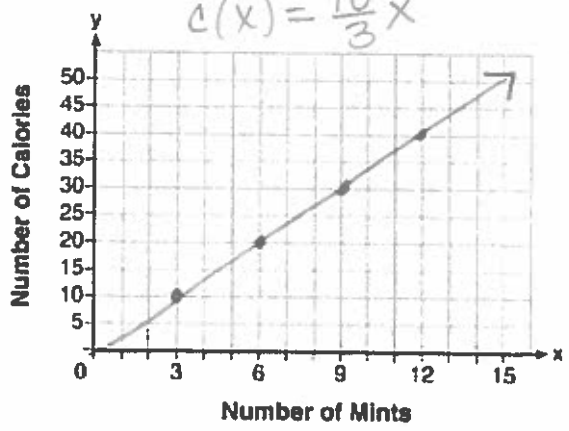
$y = 80(1.5)^{26}$

$y = 303014$ downloads

This isn't reasonable b/c as time goes on the # of people downloading after 10 weeks or so would decrease, not be 300,000

Max purchased a box of green tea mints. The nutrition label on the box stated that a serving of three mints contains a total of 10 Calories. On the axes below, graph the function, C, where $C(x)$ represents the number of Calories in x mints.

$C(x) = \frac{10}{3}x$



Write an equation that represents $C(x)$. A full box of mints contains 180 Calories. Use the equation to determine the total number of mints in the box.

$\left(\frac{3}{10}\right)180 = \frac{10}{3}x\left(\frac{3}{10}\right)$

$54 = x$

Each day Toni records the height of a plant for her science lab. Her data are shown in the table below.

Day (n)	1	2	3	4	5
Height (cm)	3.0	4.5	6.0	7.5	9.0

The plant continues to grow at a constant daily rate. Write an equation to represent $h(n)$, the height of the plant on the nth day.

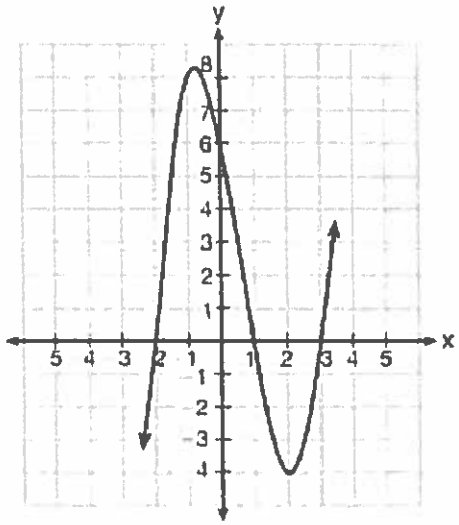
$h(n) = 1.5n + 1.5$

Which equation(s) represent the graph below?

I $y = (x+2)(x^2-4x-12)$

II $y = (x-3)(x^2+x-2)$ ✓

III $y = (x-1)(x^2-5x-6)$



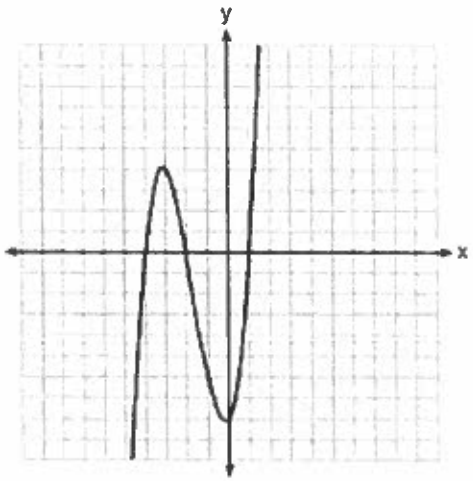
1 I, only

2 II, only

3 I and II

4 II and III

The graph of $f(x)$ is shown below.



Which function could represent the graph of $f(x)$?

1 $f(x) = (x+2)(x^2+3x-4)$ ✓

2 $f(x) = (x-2)(x^2+3x-4)$ ✗

3 $f(x) = (x+2)(x^2+3x+4)$ ✗

4 $f(x) = (x-2)(x^2+3x+4)$ ✗

The function, $t(x)$, is shown in the table below.

x	t(x)
−3	10
−1	7.5
1	5
3	2.5
5	0

Determine whether $t(x)$ is linear or exponential. Explain your answer.

Linear, it has a constant rate of change.

The table below shows the average yearly balance in a savings account where interest is compounded annually. No money is deposited or withdrawn after the initial amount is deposited.

Linreg r=.96

exp.reg r=1

Year	Balance, in Dollars
0	380.00
10	562.49
20	832.63
30	1232.49
40	1824.39
50	2700.54

Which type of function best models the given data?

1 linear function with a negative rate of change

2 linear function with a positive rate of change

3 exponential decay function

4 exponential growth function