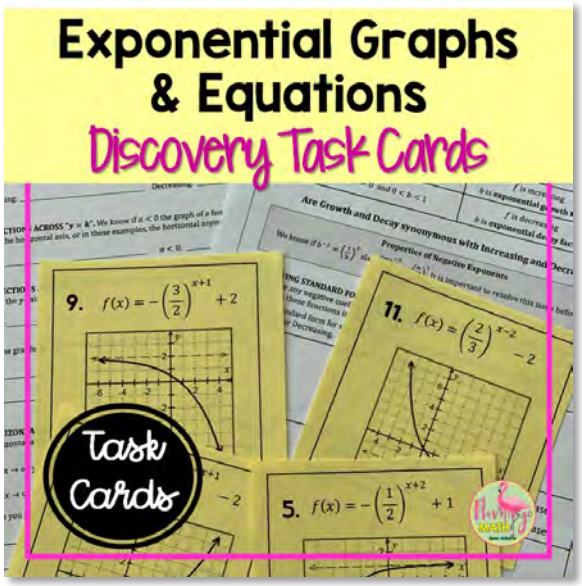


Exponential Graphs & Equations Discovery Task Cards

Your PreCalculus students will be challenged to answer the question ***"Is Growth and Decay synonymous with Increasing and Decreasing?"*** in this engaging discovery activity using 12 task cards.

This discovery activity provides students with a sort and match set of 12 task cards. PreCalculus students are challenged to sort graphs of exponential functions according to characteristics for increase, decrease, reflections, asymptotes and end-behavior. They will learn to resolve negative coefficients on variables before determining whether a function is a growth or decay function. They will also discover that growth and decay are not synonymous with increasing and decreasing.

The activity includes two different sizes of task cards to meet your classroom needs. There are four pages of discovery, including a summary page for all 12 graph cards.

Standards covered:

CCSS: HSA.REI.D.11, HSF.IF.C.7.E, HSF.IF.C.8.A, HSF.LE.A.4, HSF.BF.A.1.B, HSF.BF.A.1.C

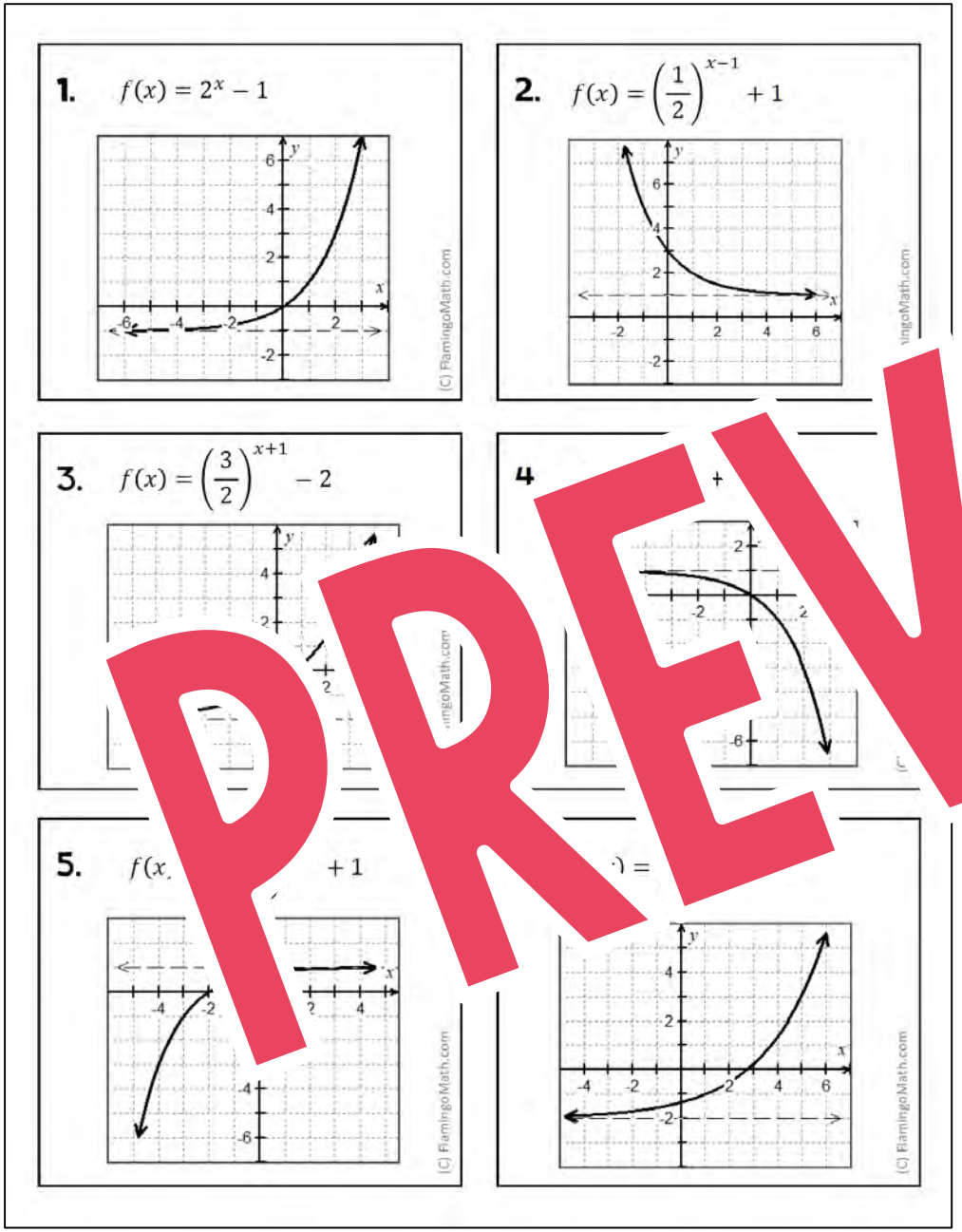
TEKS & ELPS: 5.G, 1.G, 2.G

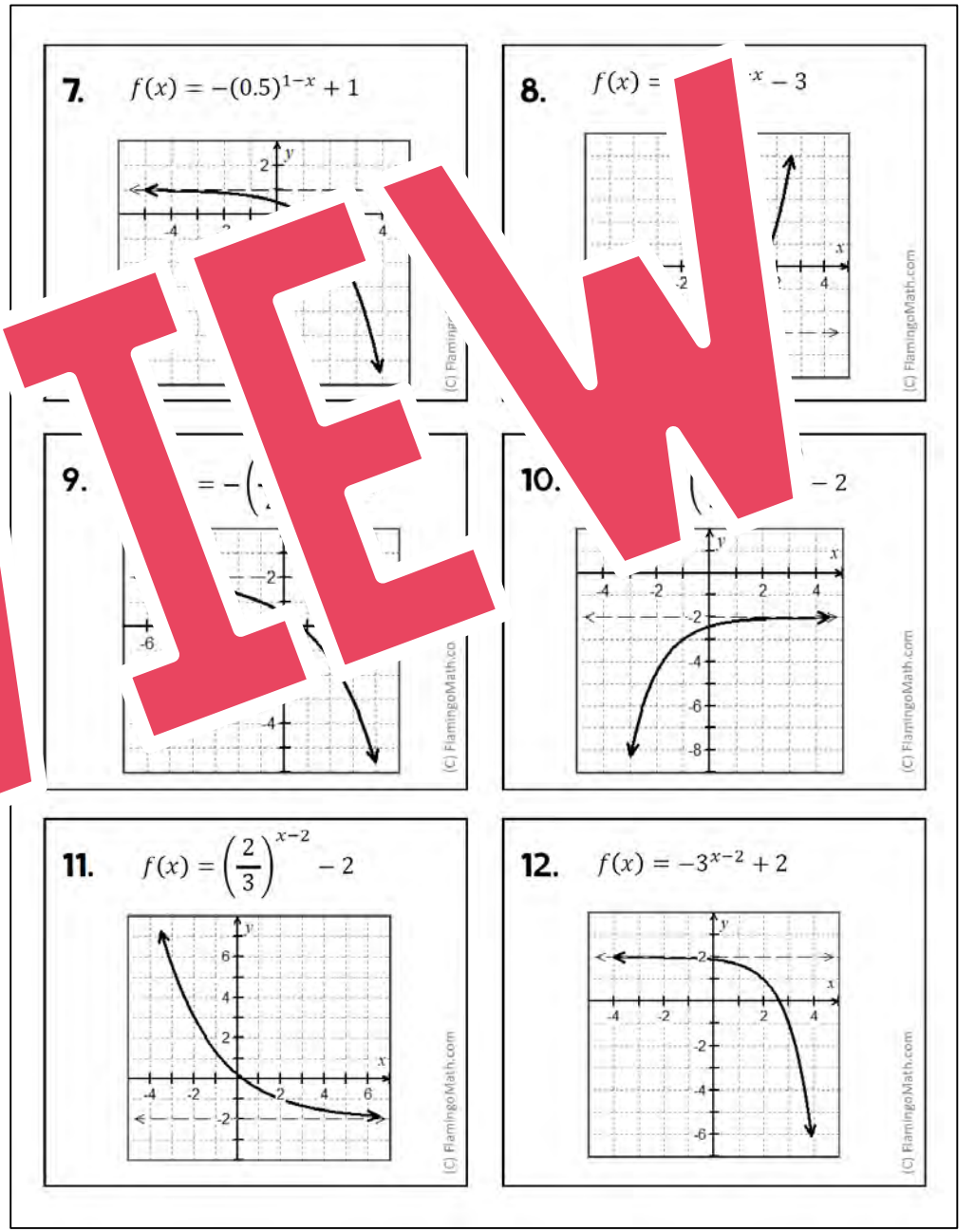
Teaching Suggestions:

- The activity can be used in small groups or as a station activity.
- Students can also be challenged to an open sort of the cards to explain and justify why their groupings.
- An answer key is included with the activity.

© Jean Adams Flamingo Math, LLC https://www.flamingomath.com/shop/

Large Task Cards

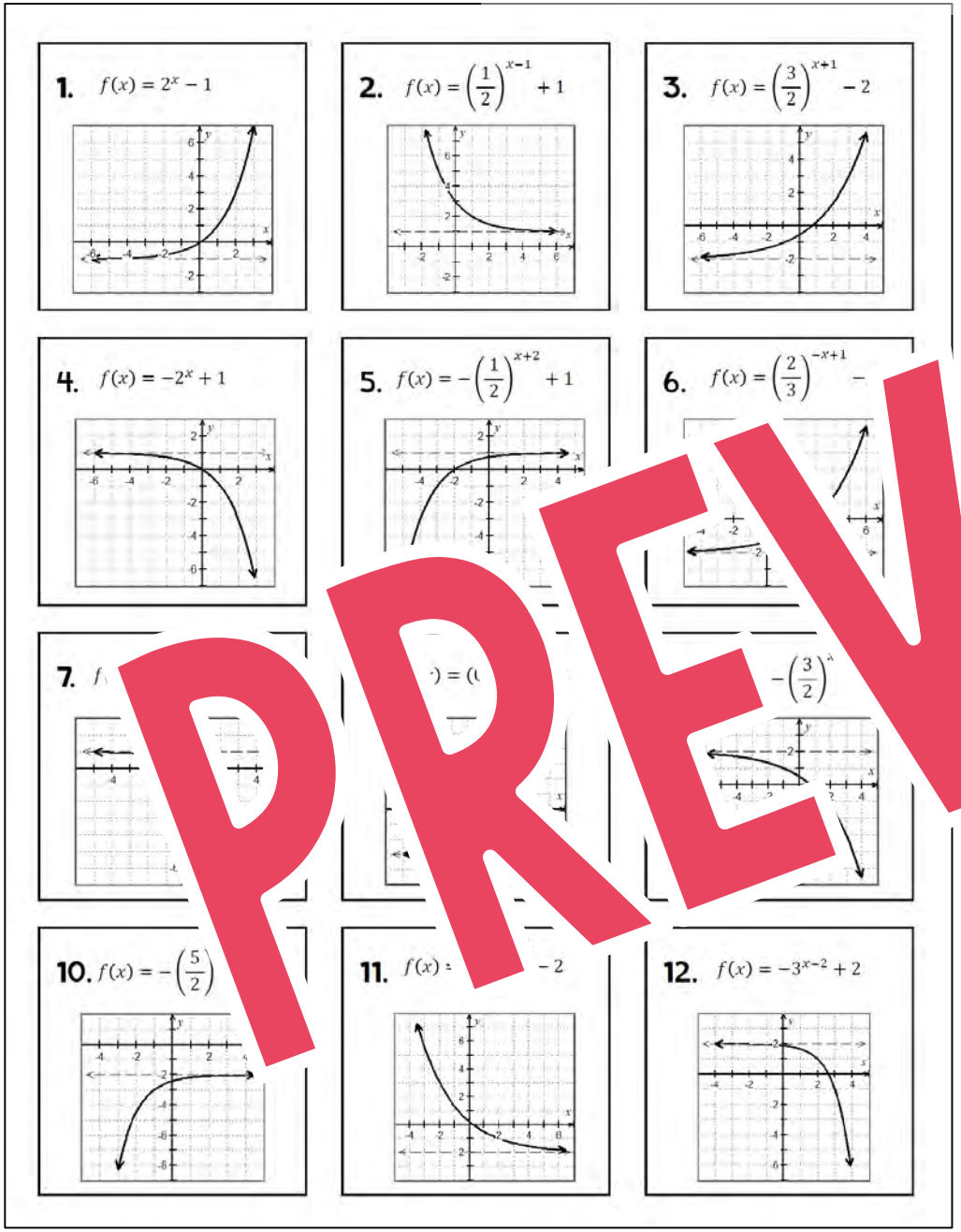


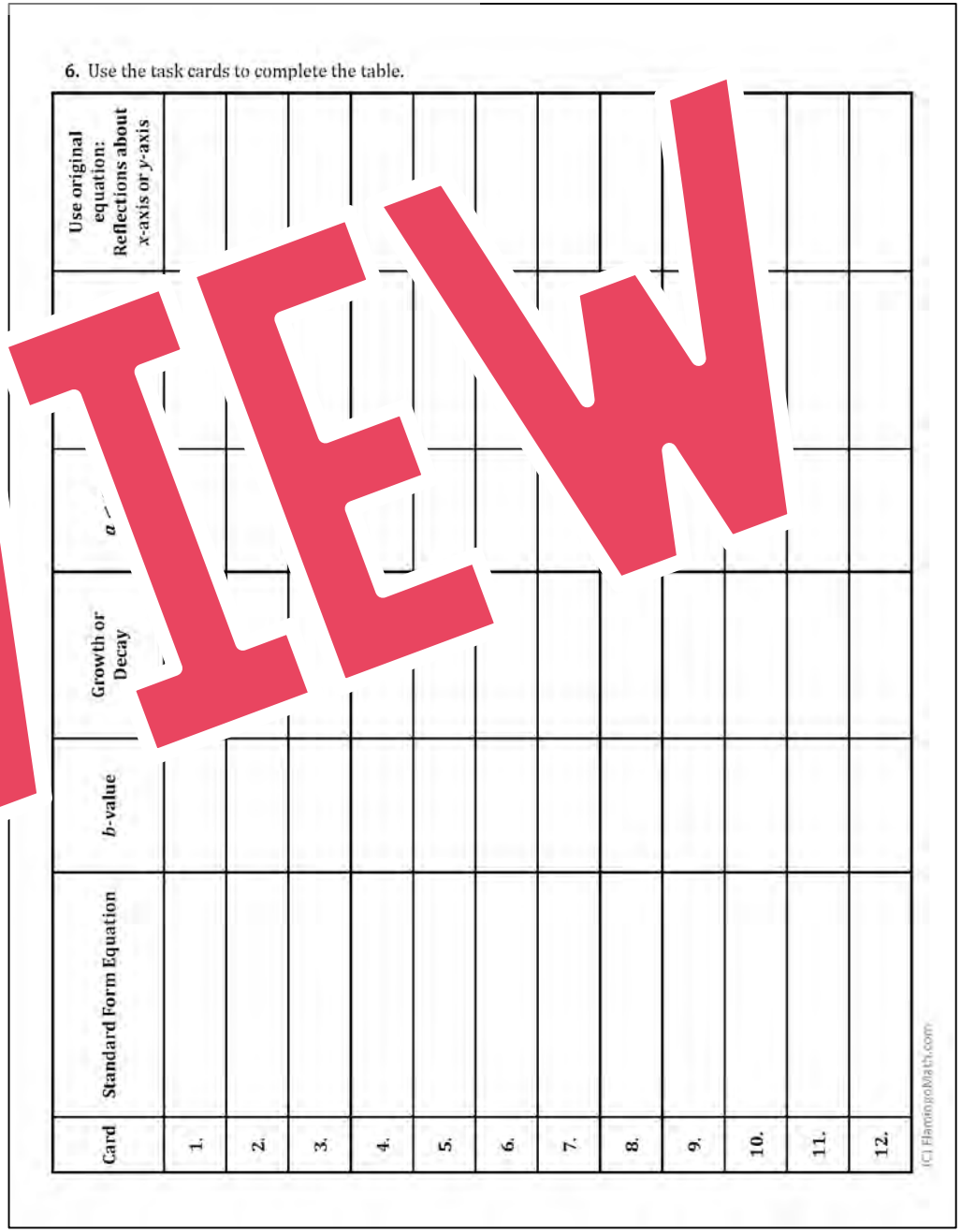


PREVIEW

© Jean Adams Flamingo Math, LLC https://www.flamingomath.com/shop/

Small Task Cards





PREVIEW

© Jean Adams Flamingo Math, LLC https://www.flamingomath.com/shop/

Student Discovery Sheet

Name _____ Date _____

Exponential Functions Sort and Match

Directions: An exponential function is in standard form if $f(x) = a \cdot b^{(x-h)} + k$
Sort the exponential functions by each prompt below.

1. **FUNCTION BEHAVIOR.** Sort the graphs of the exponential functions into either **Increasing or Decreasing** categories as you "read from left to right."

Increasing: _____ Decreasing: _____

2. **REFLECTIONS ACROSS "$y = k$".** We know if $a < 0$ the graph of a function is ref… about the horizontal axis, or in these examples, the horizontal asymptot…

$a > 0$: _____ $a <$ …

3. **REFLECTIONS ACROSS y-axis.** If … of a fu… flected about the y-axis.

$x > 0$: _____

…ry …me b… pla…

4. **HORIZO… …S.** As $x \to$ … funct… horizonta… $\to \pm\infty$; or move … mpt…

As $x \to \infty, y$ _____ $\to \infty,$ _____

As $x \to \infty, y \to$ _____

Can you give a re… …y some of the functions approach negative infinity?

_____

_____

(C) FlamingoMath.com

In this course and Calculus, we will encounter real-world applications relat… …h and decay.

Standard Form	$f(x) = a \cdot b^{(x}$
$a > 0$ and b …	f is increas… b is **exponential gro…**
… < 1	f is decreasi… …is ex… …lec…

…ı **Decay synonym**… …ng?

Properties of Neg…

…w if b^{-1} … $\left(\frac{n}{n}\right)^{1}$ It is im… …s by each ba… …orting

5. **RI… TANDAR…** …order to determine the b… …en… we need to … …negative … …n the *x-term*. Find each fun… …gativ… …ficient on x and … functions … form. Use t… form for … classify as Gro…th or Decay and also as Increa… easing.

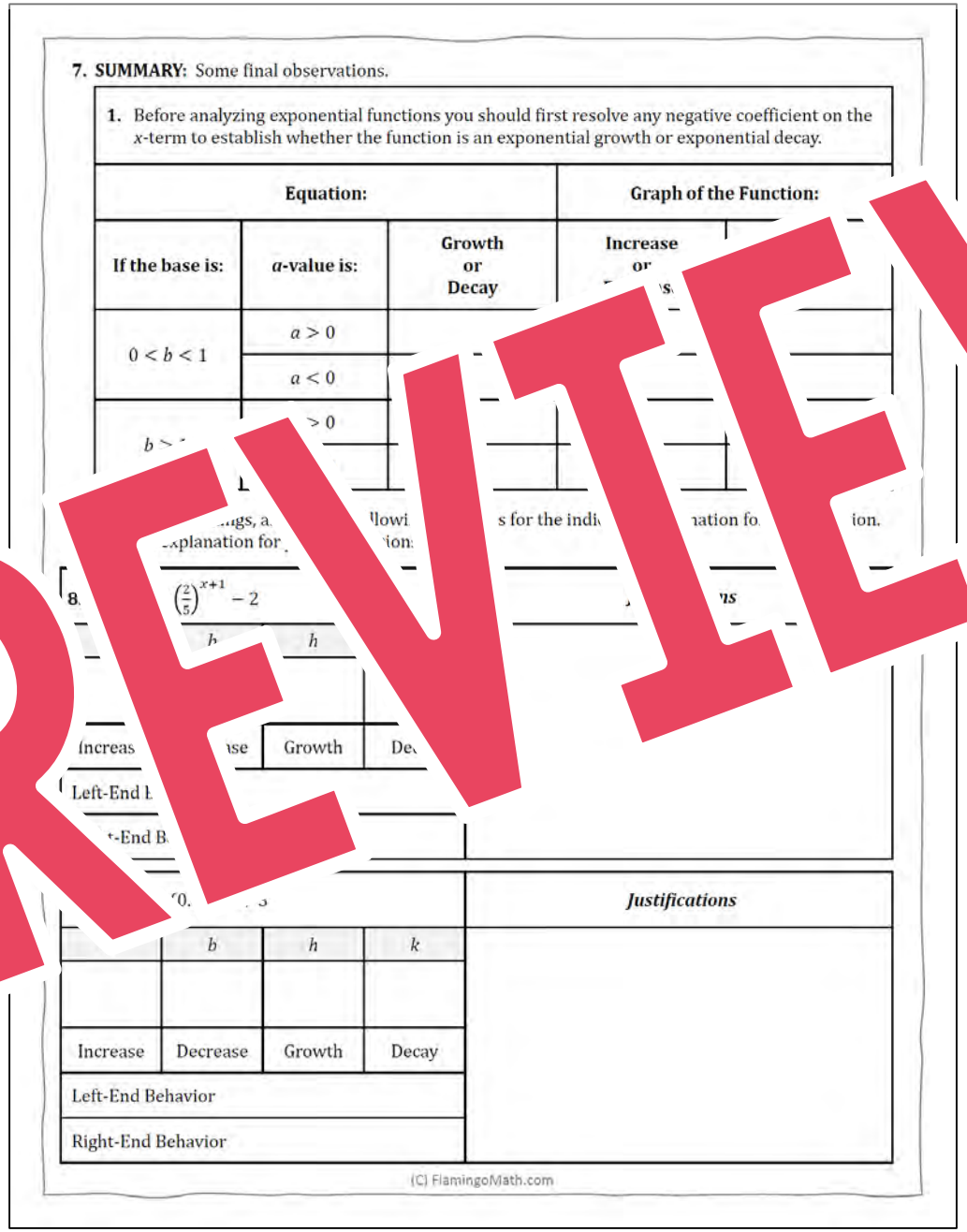
#_		#_____	
Growth Decay	Increase Decrease	Growth Decay	Increase Decrease
#_____		#_____	
Growth Decay	Increase Decrease	Growth Decay	Increase Decrease

(C) FlamingoMath.com

PREVIEW

© Jean Adams Flamingo Math, LLC https://www.flamingomath.com/shop/

Student Discovery Sheet



7. **SUMMARY:** Some final observations.

1. Before analyzing exponential functions you should first resolve any negative coefficient on the x-term to establish whether the function is an exponential growth or exponential decay.

Equation:			Graph of the Function:
If the base is:	***a*-value is:**	**Growth or Decay**	**Increase or**
$0 < b < 1$	$a > 0$		
	$a < 0$		
$b >$	> 0		

...ugs, a... llowi... s for the indi... ıation fo... ion.

...xplanation for... ion:

8. $\left(\frac{2}{5}\right)^{x+1} - 2$ ıs

h	h

Increas...	ıse	Growth	De...
Left-End I...			
...-End B...			

'0. ... ɔ				*Justifications*
	b	h	k	
Increase	Decrease	Growth	Decay	
Left-End Behavior				
Right-End Behavior				

(C) FlamingoMath.com

PREVIEW

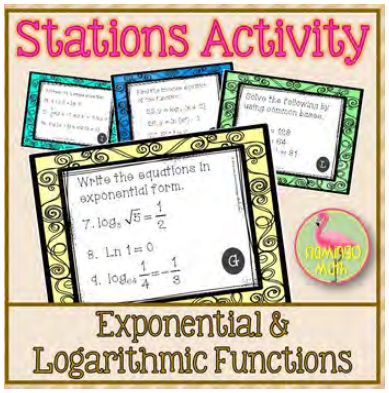
© Jean Adams Flamingo Math, LLC https://www.flamingomath.com/shop/

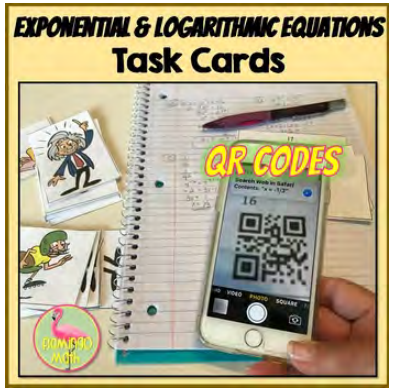


My goal is to help you bring balance into your teacher life by providing relevant content, engaging activities, and comprehensive assessments for your high-stakes math course.

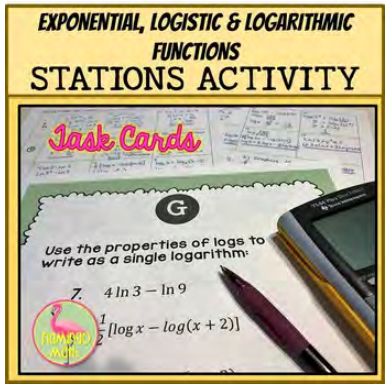
Jean

More Resources for YOU









Let's keep in touch! I'm here for you!

TPT

I appreciate your support and interest in my store.
Please email me with questions or comments:
jean@flamingomath.com

Sign up for my Newsletter to gain access to an Exclusive FREE Resource Library!

NEWS LETTER