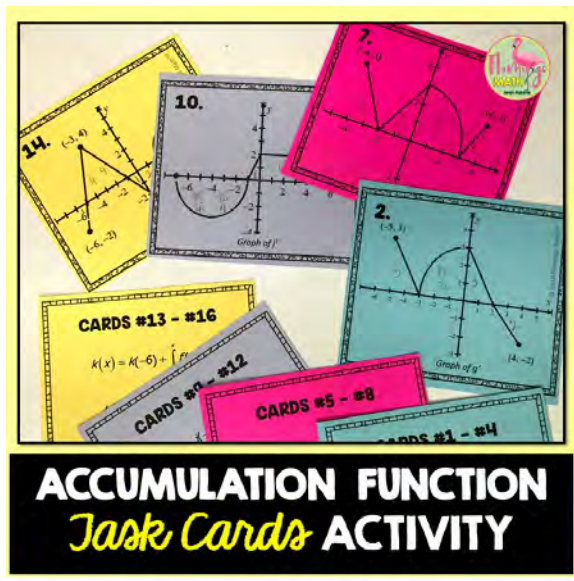




ACCUMULATION FUNCTION TASK CARDS ACTIVITY

Your AP Calculus students will have task cards to sort and match into unique sets related to Accumulation Functions and the Definite Integral.

The **Accumulation Function Task Cards Activity** is made for your AP Calculus students to gain proficiency in their ability to interpret the meaning of a definite integral within a problem. You will find a **set of 16 Derivative Graph Task Cards**, **16 Key Features Cards**, a sheet of **Blank Table Value Cards**, and a sheet of **Blank Graph Paper**. There is an answer key that includes completed Table Values and a Key Features Matching Key for the activity.

Students will practice the following skills:

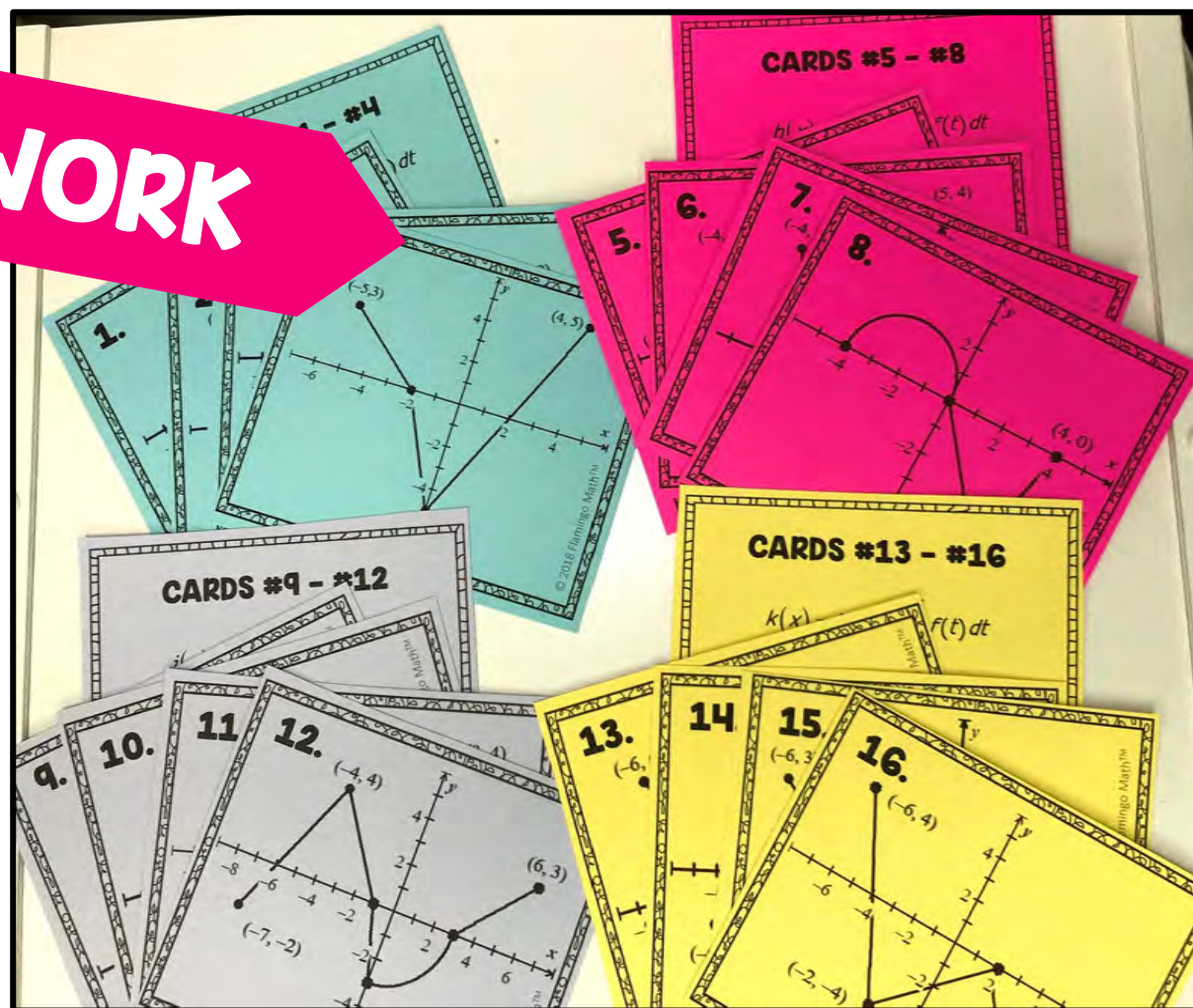
- ☒ Given the graph of a derivative function, recognize the definite integral of the rate of change of a quantity over an interval gives the net change of that quantity over that interval.
- ☒ Given the initial condition and a function defined as an integral, use accumulation of the rate of change to originate another function.
- ☒ Use first and second derivative tests to analyze function behavior.

Teaching Suggestions:

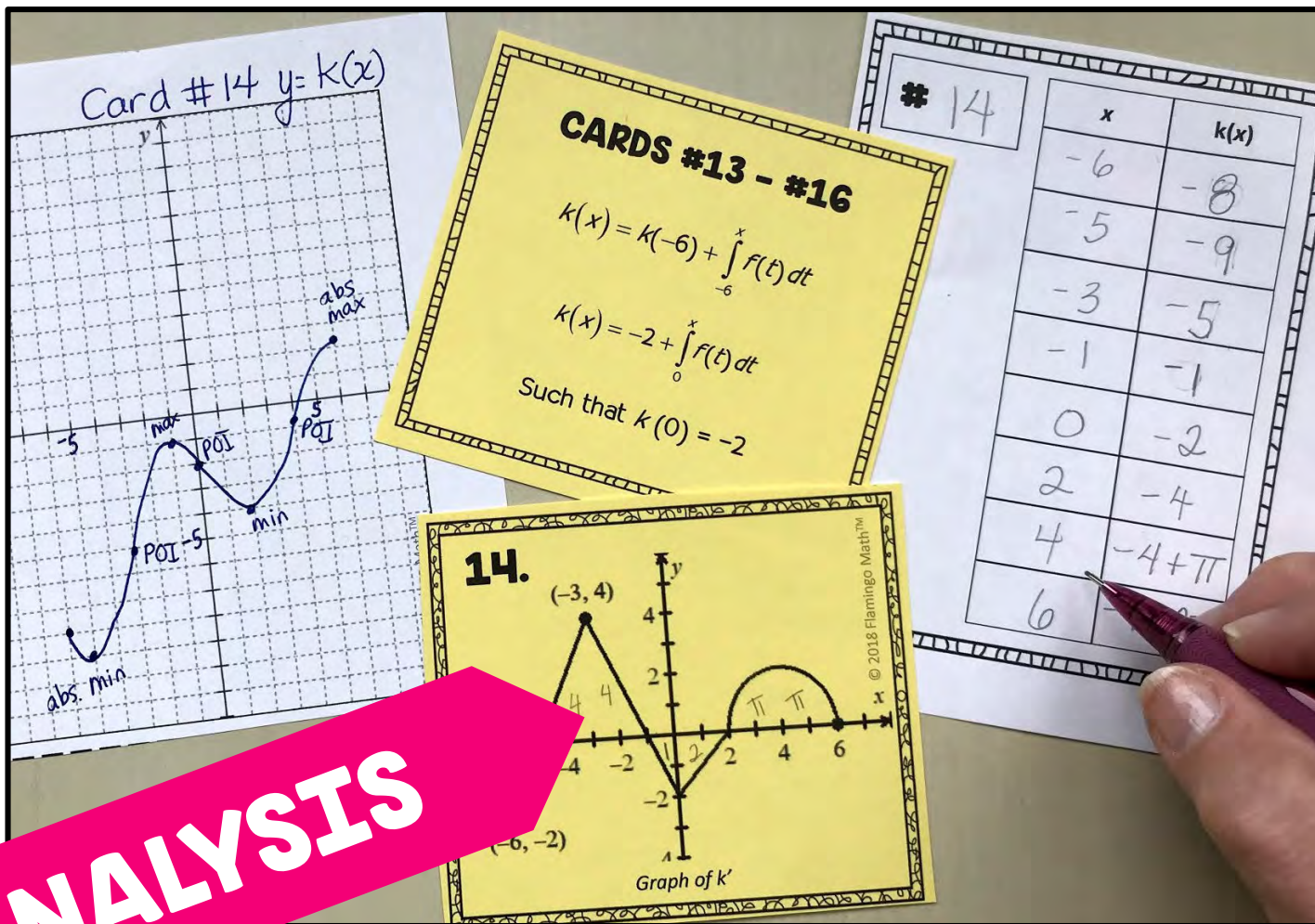
- Use the set as a group activity for 2-4 per group .
- Use the cards as an independent activity prior to assessing students.



GROUP WORK



ANALYSIS



ACCUMULATION TABLES

GROUP INSTRUCTIONS

#

x	g(x)

#

x	h(x)

#

#

DIRECTIONS:

- 1) Analyze your function completely.
- 2) Complete the table of values for your particular function card with the given initial values.
- 3) Find the Key Features card that matches your function.

CARDS #1 - #7

$g(x) = \int_{-5}^x f(t) dt$

Find the Key Features card that matches your function.

DIRECTION:

- 1) Analyze your function completely.
- 2) Complete the table of values for your particular function card with the given initial values.
- 3) Find the Key Features card that matches your function.

CARDS #9 - #12

$j(x) = j(-7) + \int_{-7}^x f(t) dt$

$j(x) = -1 + \int_0^x f(t) dt$

Such that $j(0) = -1$

DIRECTIONS:

- 1) Analyze your function completely.
- 2) Complete the table of values for your particular function card with the given initial values.
- 3) Find the Key Features card that matches your function.

CARD #8

$f(t) dt$

Find the Key Features card that matches your function.

DIRECTIONS:

- 1) Analyze your function completely.
- 2) Complete the table of values for your particular function card with the given initial values.
- 3) Find the Key Features card that matches your function.

CARDS #13 - #16

$k(x) = k(-6) + \int_{-6}^x f(t) dt$

$k(x) = -2 + \int_0^x f(t) dt$

Such that $k(0) = -2$

T.1

x	$g(x)$
-5	$6.5 - \pi$
-2	$2 + \pi$
0	2
2	$2 + \pi$
4	$5 + \pi$

ANSWER KEYS

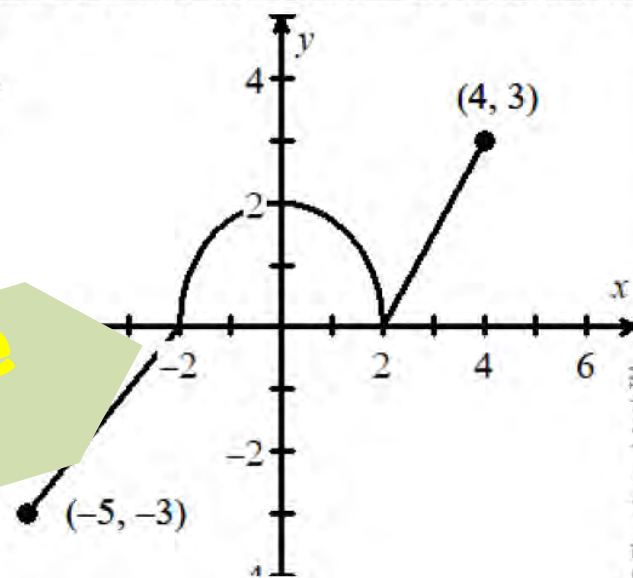
H.

$$g(x) = 2 + \int_0^x f(t) dt$$

Maximum	Minimum	Point of Inflection
Absolute $x = 4$	Relative $x = -2$ Absolute $x = -2$	$x = 0$ $x = 2$

KEY FEATURES

1.



Graph of g'

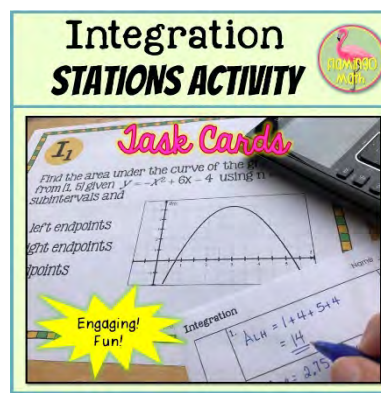
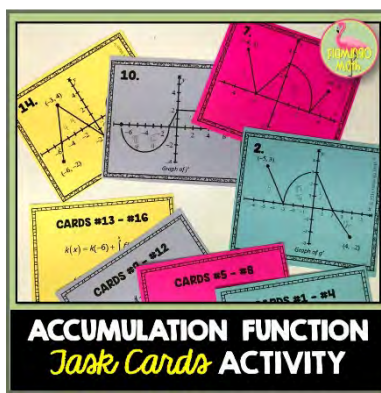
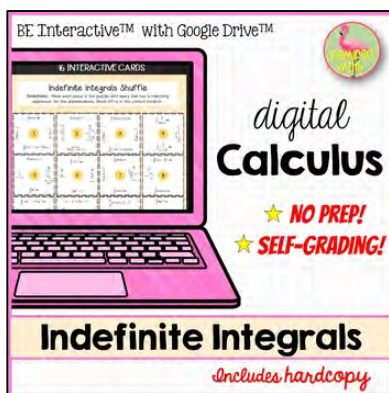
Derivative Graph



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