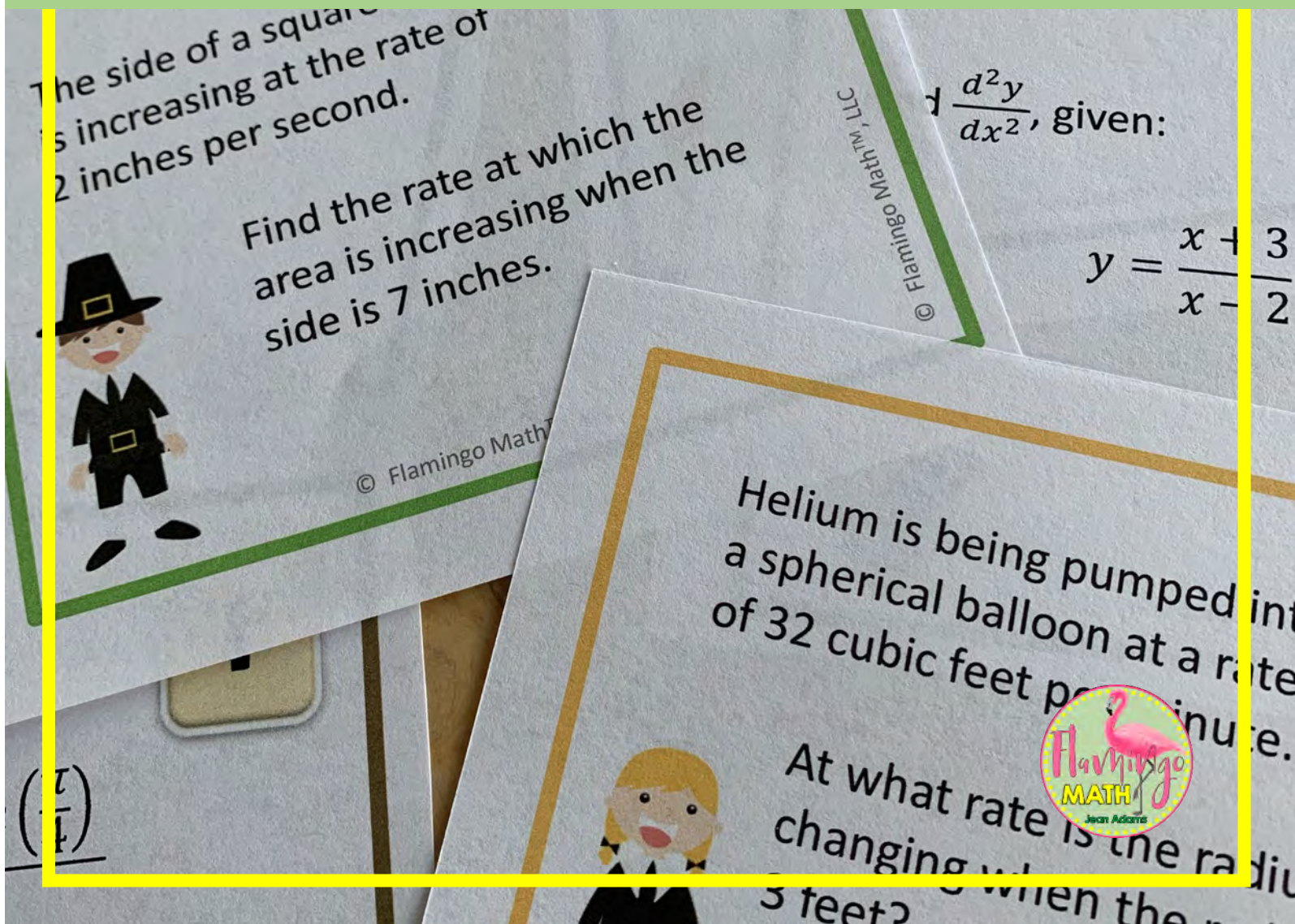
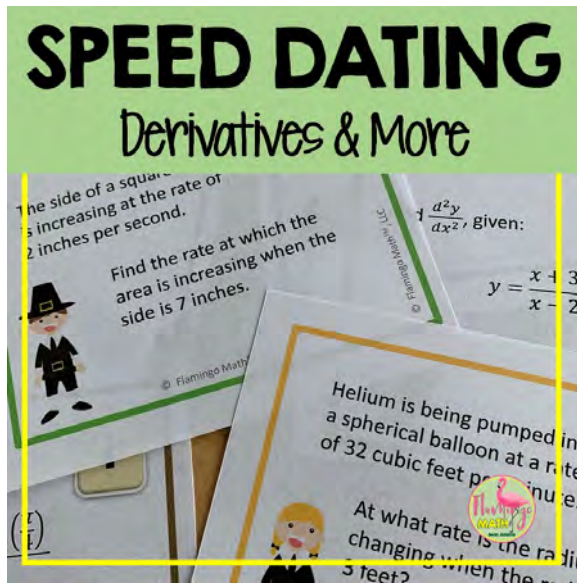


SPEED DATING

Derivatives & More





SPEED DATING

Differentiation and Contextual Applications

Your AP Calculus students will be actively involved in this fast-paced Thanksgiving-themed Speed Dating activity for Derivatives and more.

This activity is designed to challenge your **AP Calculus** students by engaging them in conversations related to the Chain Rule, Implicit Differentiation, Inverse Functions, Related Rates, Tangent Lines, and more.

Speed Dating for Differentiation of Composite, Implicit, and Inverse Functions

College Board® Topics:

Topic 3.1 – 3.6: Differentiation of Composite, Implicit, and Inverse Functions

Topic 4.2: Straight-Line Motion Connecting Position, Velocity, and Acceleration

Topic 4.5: Solving Related Rates Problems

Topic 5.11: Solving Optimization Problems

The **Speed Dating Strategy** is made to help students gain proficiency in their ability to work in an efficient manner and discuss the vocabulary of calculus with their peers.

You will find a **set of 16 task cards and a student recording sheet**. There is an answer key included for the activity.

Students will practice the following skills:

- ☒ Given a function find the derivative of the function, including chain rule, product and quotient rules, implicit differentiation, inverse trigonometric functions, and symbolic differentiation.
- ☒ Find the second derivative of a function.
- ☒ Write the equation of the tangent line for a function.
- ☒ Solve related rates problems.
- ☒ Use the limit definition of the derivative to evaluate an expression



1

$$\lim_{h \rightarrow 0} \frac{\left(\csc \frac{\pi}{4} + h \right) - \csc \left(\frac{\pi}{4} \right)}{h}$$



© Flamingo Math™, LLC

2

$$y = \frac{2x}{(1-3x^2)^2}$$



© Hamilton/Adair® LLC

5

$$y = \frac{x+3}{x-2}$$



© HomelineMfg. LLC

6

$$y = \tan^{-1}(\sin x)$$



© 1999

3

$$f(x) = \frac{x}{\cos x}$$



© Flamingo MathTM, LLC

U

$$y = 9x^3 f(g(x))$$



Stemmed Plant

$$= \frac{\pi}{8}$$

to the

Di

20

8

The di... two
numbe... find the two
numbers such that their product
is minimized.



© DomtarMedia LLC

A frozen yogurt shop knows that the cost, C , in dollars, to produce q quarts of pistachio yogurt is a function (in part) of the number of quarts they produce. Explain the meaning of the mathematical sentence $f'(120) = 1.75$



Harrison-Edger® LLC

The side of a square is increasing at the rate of 2 inches per second.



Find the rate at which the area is increasing when the side is 7 inches.

© Fujiwara Matsui, LLC

Let $f(x) = x^4 - 3x - 2$, and let $g(x)$ denote the inverse of f . Find $g'(2)$.



© GlaxoSmithKline, LLC

A dairy farmer wants to fence a rectangular pasture adjacent to a river to protect his cows. The river acts as one of the borders to the pasture, so no fencing is needed along the river. The pasture must contain 180,000 square meters to provide adequate grazing area. What dimensions would require the least amount of fencing?



(b) $E_{\text{ionization}} = 2.1 \times 10^{-18} \text{ J}$

Let $f(t)$ be the amount of snow, in inches, that have fallen since midnight, where t is the time in hours since midnight. Interpret the following statement in context to the problem. $(f^{-1})'(6) = 1.5$.



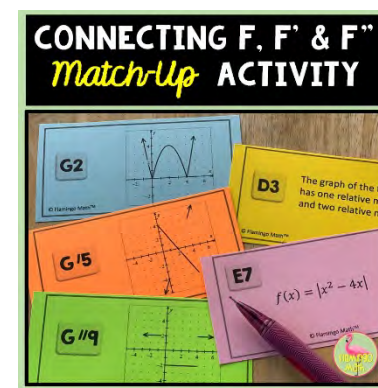
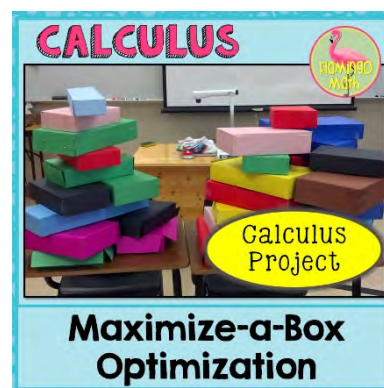
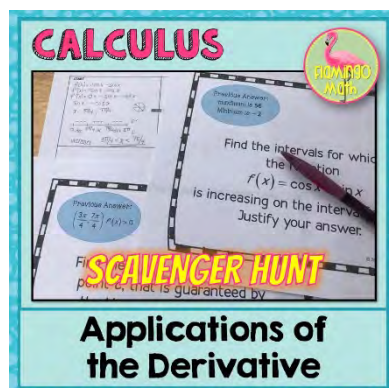
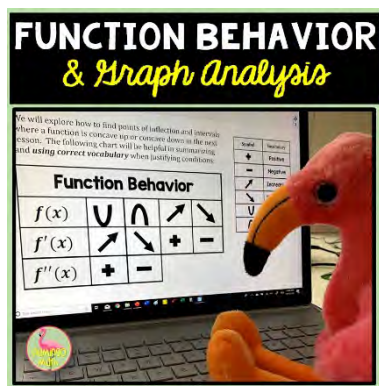
► <http://www.pearsoned.com>



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.



More Resources for YOU



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



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!

