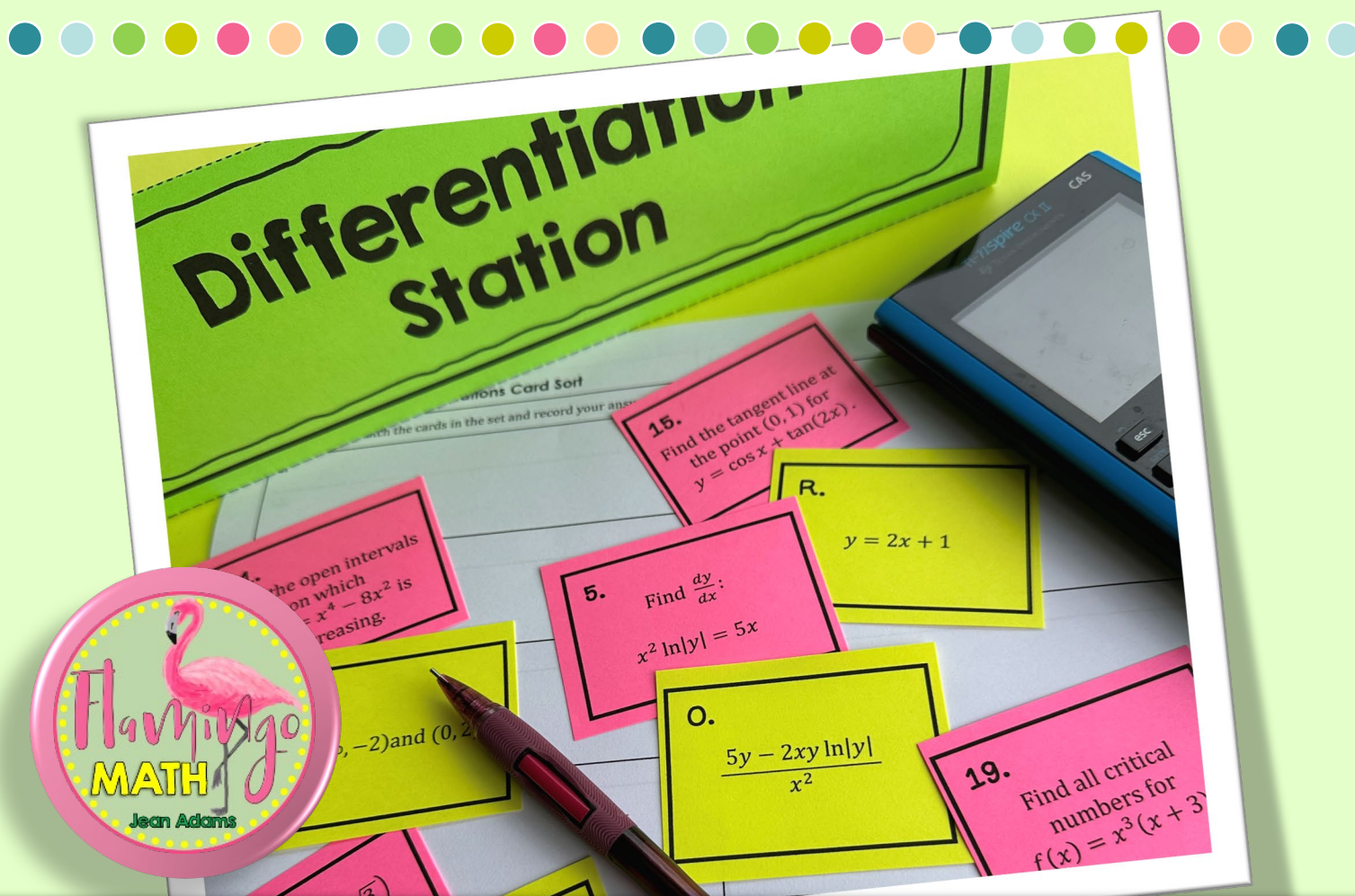


Differentiation Task Cards



Station Activity

Differentiation Station Cards



KEY CONCEPTS/TOPICS:

- ★ Find derivatives of functions using derivative rules, implicitly, and inverse functions
- ★ Find equations for the tangent line
- ★ Find critical numbers, intervals of increase, decrease, extrema

Standards:

TOPIC 2.5: Applying the Power Rule

TOPIC 2.6: Derivative Rules: Constant, Sum, Difference and Constant Multiple

TOPIC 2.7: Derivatives of $\cos x$, $\sin x$, e^x , and $\ln x$

TOPIC 2.8: The Product Rule

Topic 2.9: The Quotient Rule

Topic 2.10: Finding Derivatives of Tangent, Cotangent, Secant and/or Cosecant Functions

Topic 3.1: The Chain Rule

Topic 3.2: Implicit Differentiation

Topic 3.3: Differentiating Inverse Functions

Topic 3.4: Differentiating Inverse Trigonometric Functions

Topic 3.5: Selecting Procedures for Calculating Derivatives

Product Overview

Differentiation Stations Card Sort

PREPARATION:

Copy a student recording sheet for supporting work, if you want that accountability.
Copy each set of cards on a different color, (Numerical cards 1-32 and Alphabetic cards A-f).
Cut apart cards and laminate for durability. Place cards in a zipped bag for organization.
Create the table tent for your station review day.

GENERAL DIRECTIONS:

Students are given a set of numeric cards with a function and a set of alphabetic cards with a derivative. Students work cooperatively to find a matched set. There is a student recording sheet to support work. The activity can also be used with only the numeric cards to reduce the "guessing" strategy.

Tape this edge to the opposite side to create a table tent

Copy this "table tent" on a colorful piece of cardstock. Then fold the tent lengthwise along the dotted lines. Tape the folded "flap" to secure a triangular shaped tent for the table.

Fold here

Differentiation
Station

Differentiation
Station

Differentiation Stations Card Sort

Name: _____

Directions: Match the cards in the set and record your answers below.

1.	2.
3.	4.
5.	
7.	8.
9.	10.

1. Find $f'(x)$:

$$f(x) = \frac{e^{7x}}{7x}$$

2. Find $f'(x)$:

$$f(x) = -4e^x \tan(x)$$

3. Find $\frac{dy}{dx}$:

$$\ln(xy) + 3x = 4$$

4. Find $\frac{dy}{dx}$:

$$\ln(xy) + 2y = 4x$$

5. Find $\frac{dy}{dx}$:

$$x^2 \ln|y| = 5x$$

6. Find $\frac{dy}{dx}$:

$$x^2 \ln|x| = 2x$$

7. Find $f'(x)$:

10. Find $f''(x)$:

$$f(x) = \ln(\ln(x^2 + 6x))$$

8. Find $f'(x)$:

$$f(x) = \ln(\ln(3x + 4))$$

11. Find the first derivative of $f^{-1}(-8)$ given $f(x) = x^2 - 5x - 14$ on $-3 \leq x \leq 3$.

12. Find the first derivative of $f^{-1}(-8)$ given $f(x) = x^2 - 5x - 14$ on $5 \leq x \leq 10$.

13. Find the tangent line for $y = \ln(x^2) + 1$ at $(e, 3)$.

14. Find the tangent line for $y = 2x - 4x^{-1/2}$ at $(4, 6)$.

15. Find the tangent line at the point $(0, 1)$ for $y = \cos x + \tan(2x)$.

16. Find $f''(x)$ at $(1, 3)$:
 $x^2 y + yx^2 = 6$

A.

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

B.

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

D.

$$-4e^x (\sec^2 x + \tan x)$$

E.

$$\frac{2}{\sqrt{15}}$$

F.

$$\frac{3}{2\pi}$$

G.

$$\frac{4xy - y}{x + 2xy}$$

H.

$$\frac{3}{(3x + 4) \ln(3x + 4)}$$

I.

$$(-\infty, 0) \text{ and } (2, \infty)$$

J.

$$\frac{e^{7x}(7x - 1)}{7x^2}$$

K.

$$9x - 4y = 12$$

L.

$$\frac{-2(9x^2 + 1)}{(3x^2 - 1)^3}$$

M.

$$-2(\sin x - 6x^2)(\cos x + 2x^3)$$

N.

$$\left(\frac{1}{2}, \frac{1}{2e}\right)$$

O.

$$\frac{5y - 2xy \ln|y|}{x^2}$$

P.

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