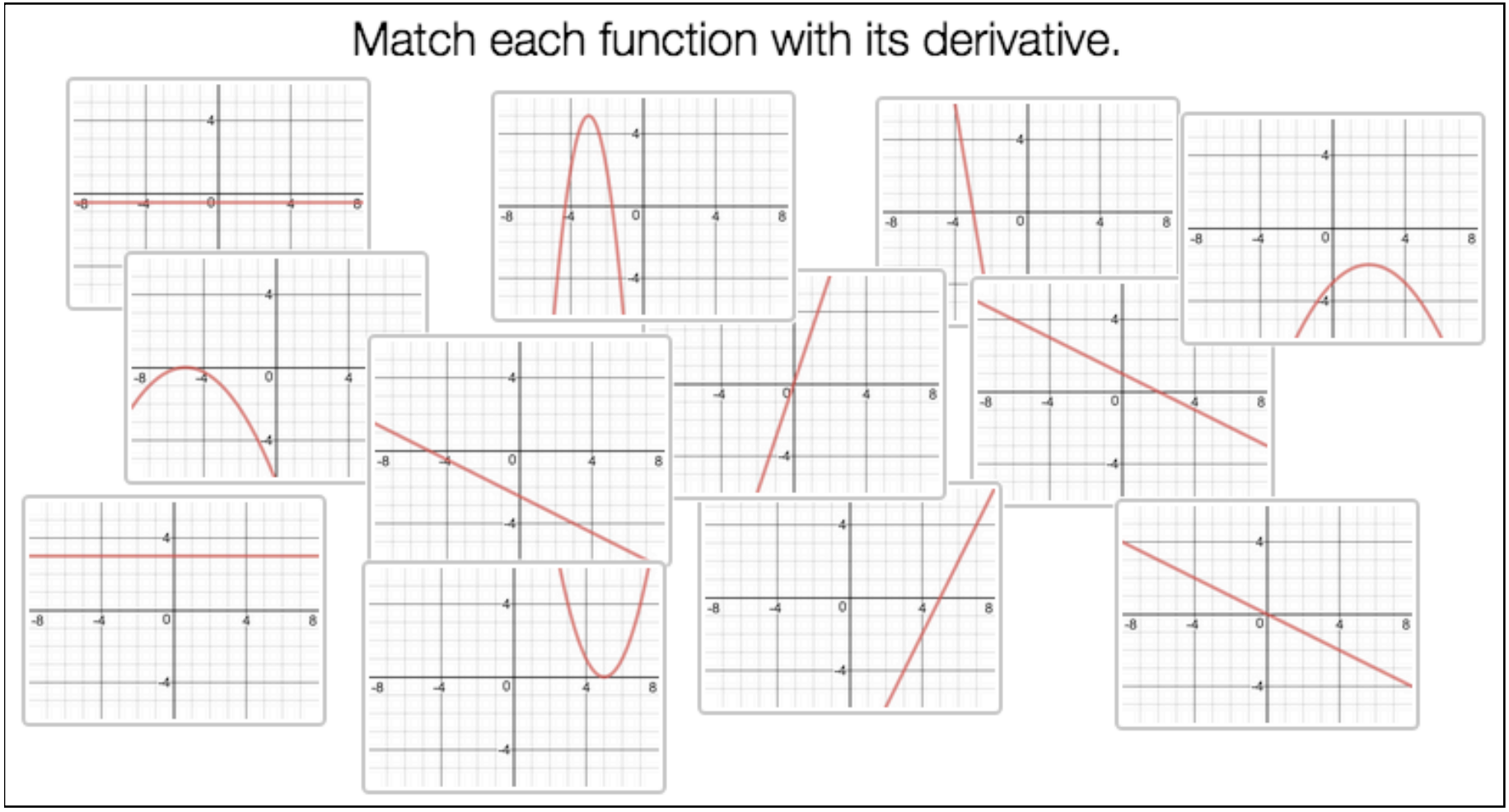
Making Connections with Card Sorts

Carrie Muir, Ph.D.
Whatcom Community College

MathFest
2 August 2018

Virtual Card Sorts

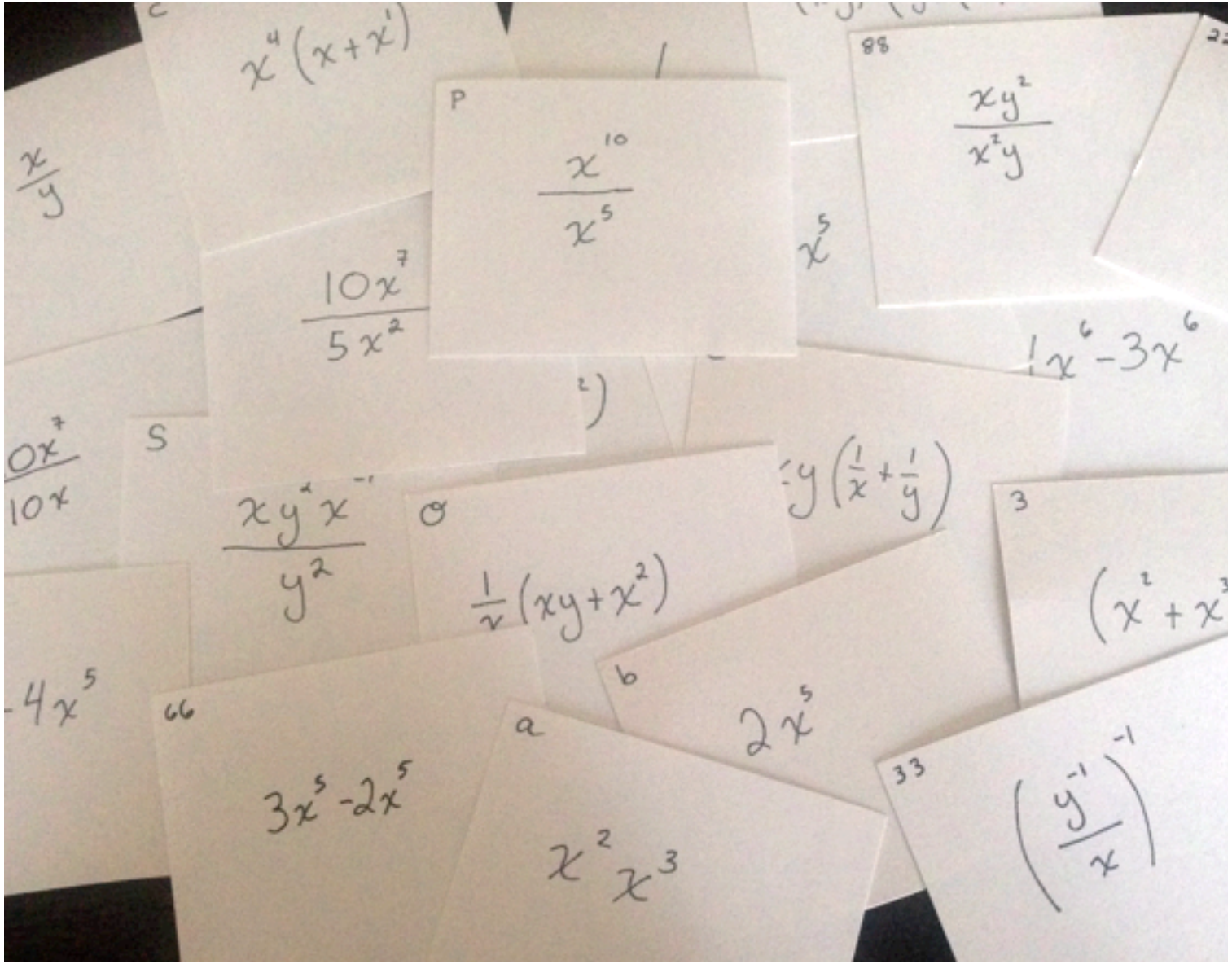
Virtual Card Sorts



Desmos Card Sort: Derivative Match

Physical Card Sorts

Physical Card Sorts



Physical Card Sorts

Physical Card Sorts

- No devices required

Physical Card Sorts

- No devices required
- Can be produced quickly and cheaply

Physical Card Sorts

- No devices required
- Can be produced quickly and cheaply
- Focus for in-class groupwork

Physical Card Sorts

- No devices required
- Can be produced quickly and cheaply
- Focus for in-class groupwork
- Produces a different kind of group engagement

Concept Check

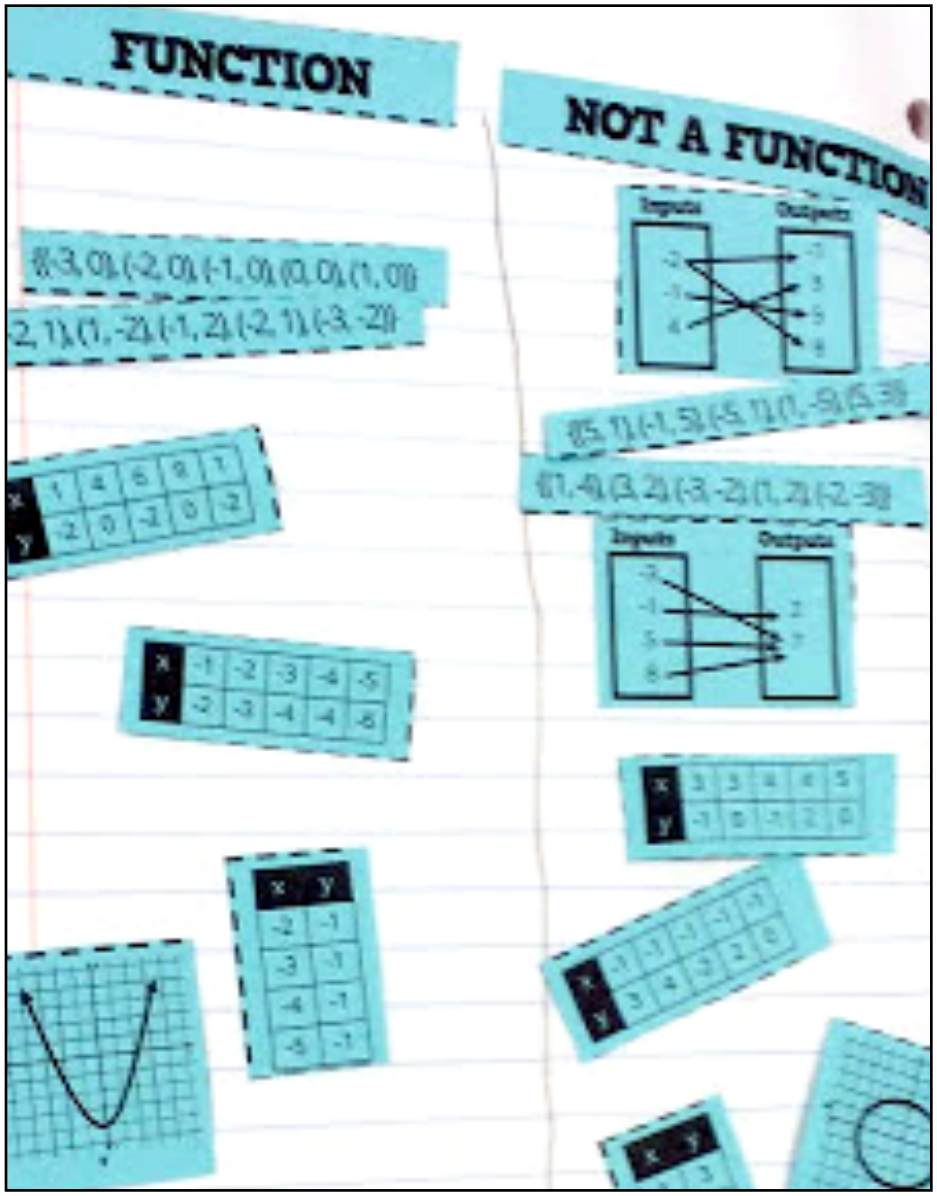
Concept Check

Example: Function or Not?

Concept Check

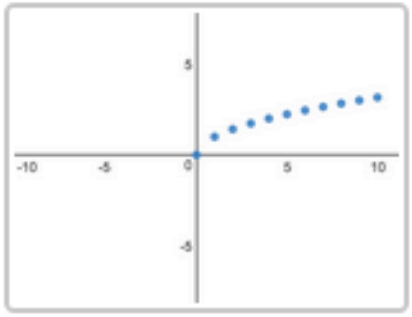
Example: Function or Not?

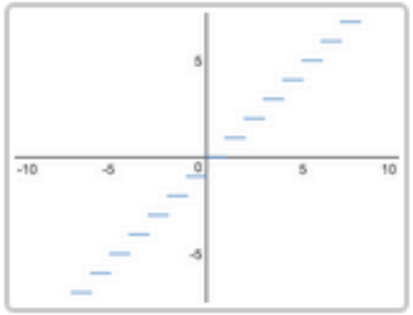
Students are given a mix of graphs, equations, tables, relation maps, or descriptions, and sort them into functions and non-functions.



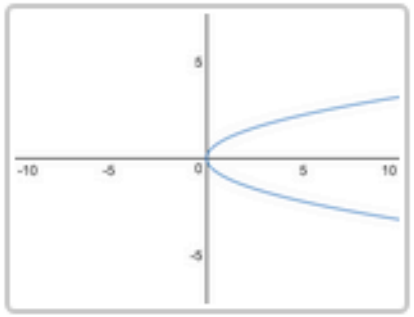
Math Equals Love Blog: Function or Not a Function Card Sort

Sort these cards into two groups—one group of functions, and one group of not-functions.





Function



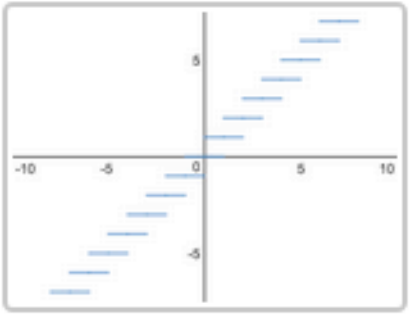
Not a Function

In a class of ninth graders, the relationship between student (independent variable) and height (dependent variable).

$y = \pm\sqrt{x}$

$y = |x|$

In a class of ninth graders, the relationship between shoe size (x-axis) and height (y-axis).



Desmos Card Sort: Functions

Moving to the Next Level

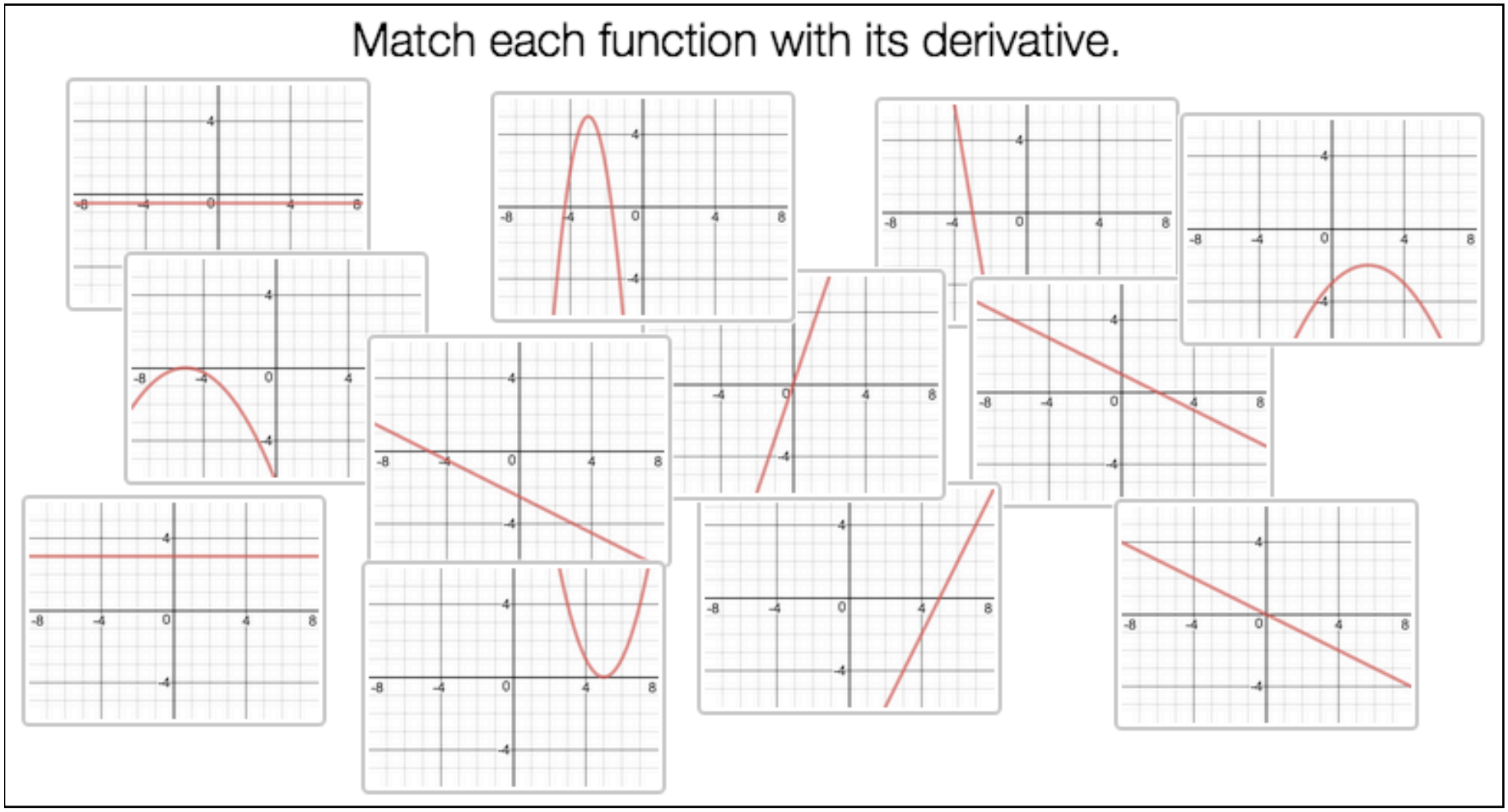
Moving to the Next Level

Example: Derivative Match

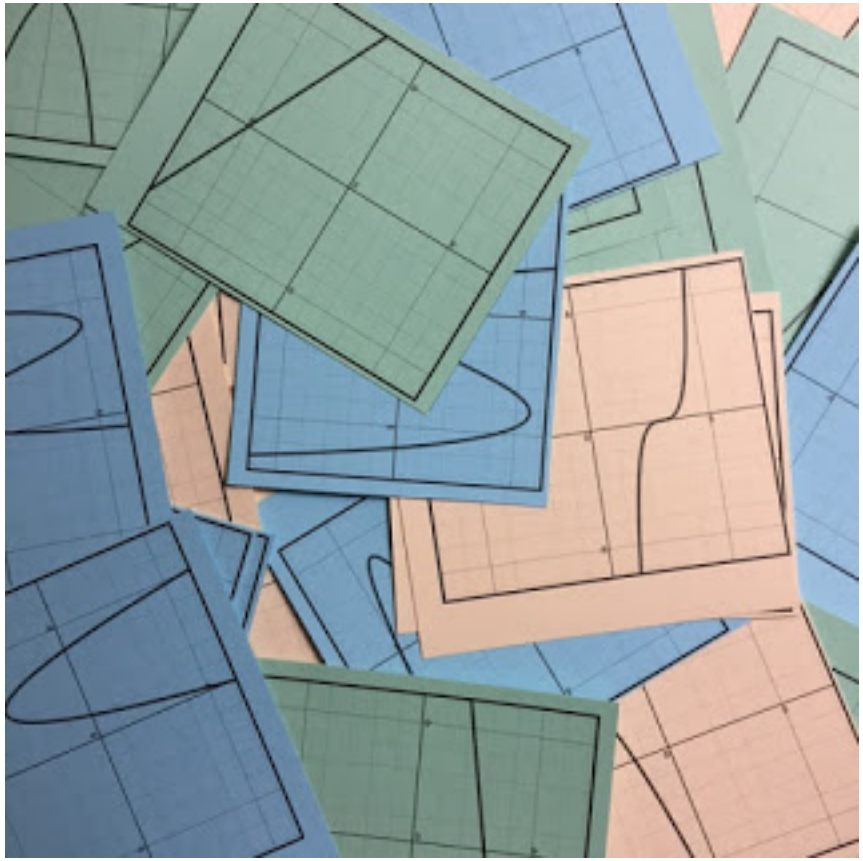
Moving to the Next Level

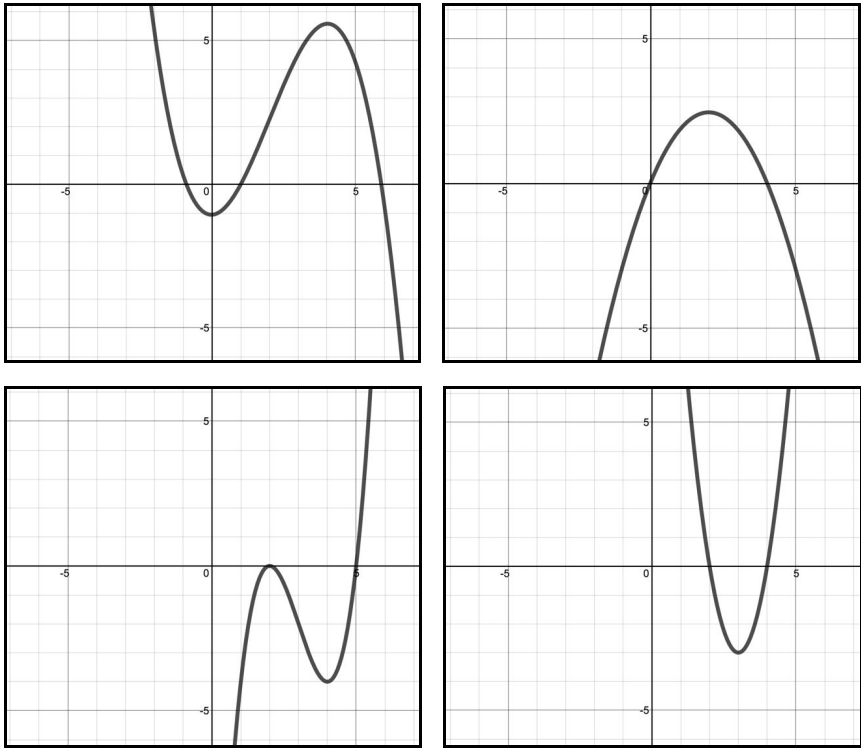
Example: Derivative Match

Students are given a set of graphs, and must find pairs that represent a function and its derivative (or a function and its integral).



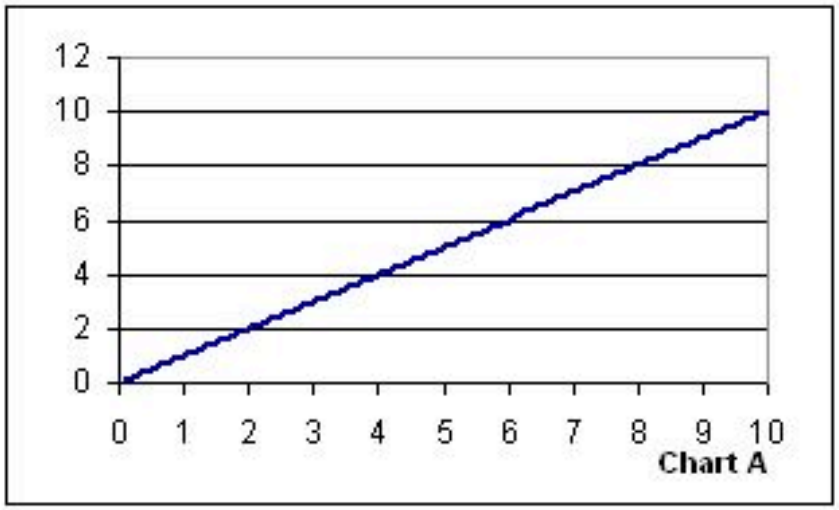
Desmos Card Sort: Derivative Match

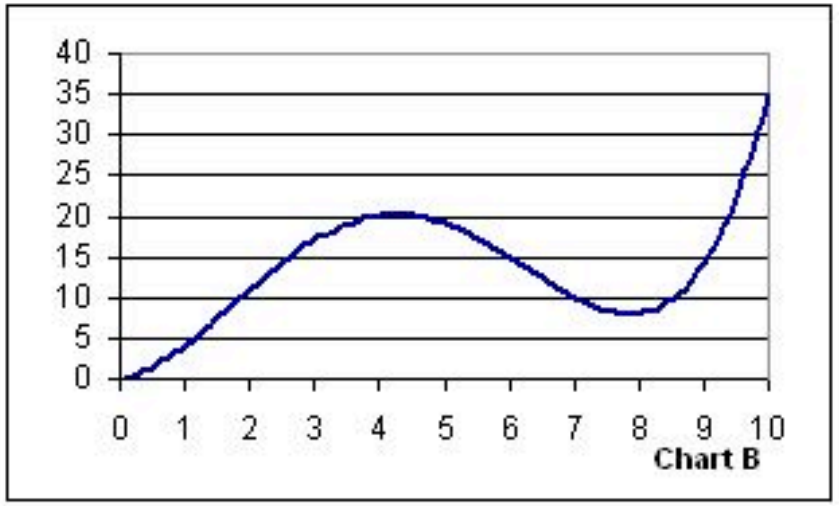


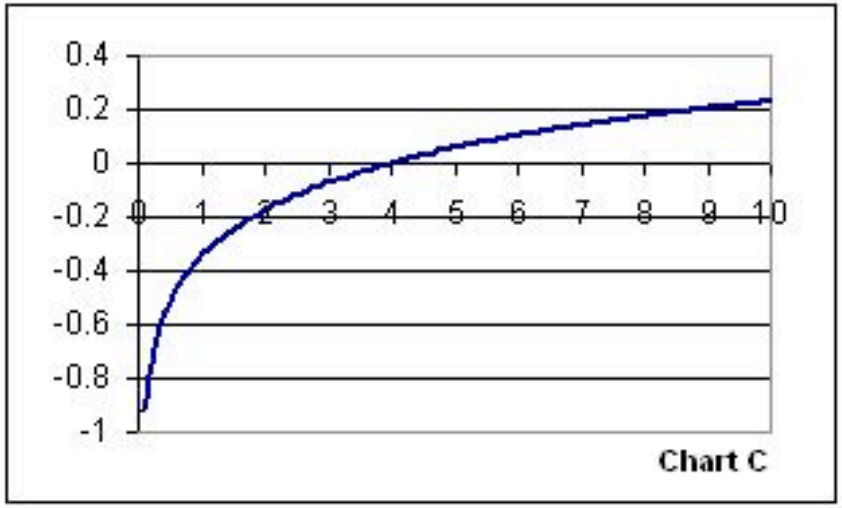


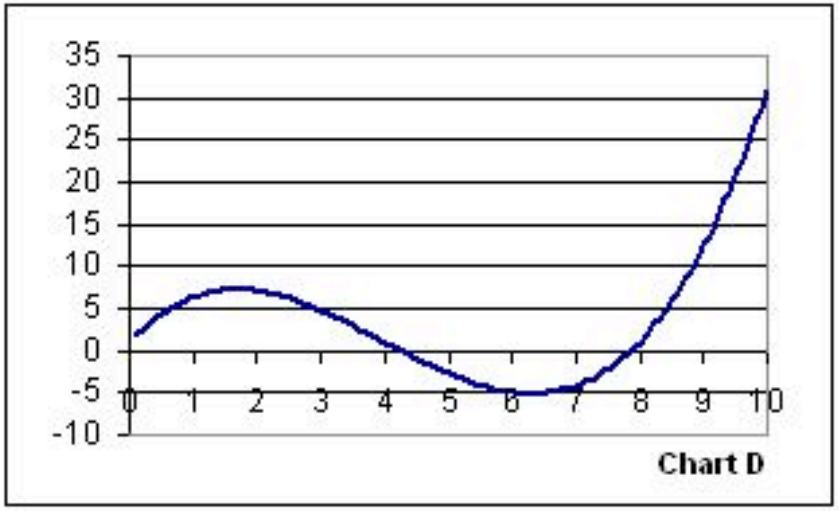
Engaging Math Blog: Derivative Matching Cards

The graphs of six functions and the graphs of their integrals have been mixed up below. Can you match them together?









NRichMaths.org: Integration Matcher

Summative Activity

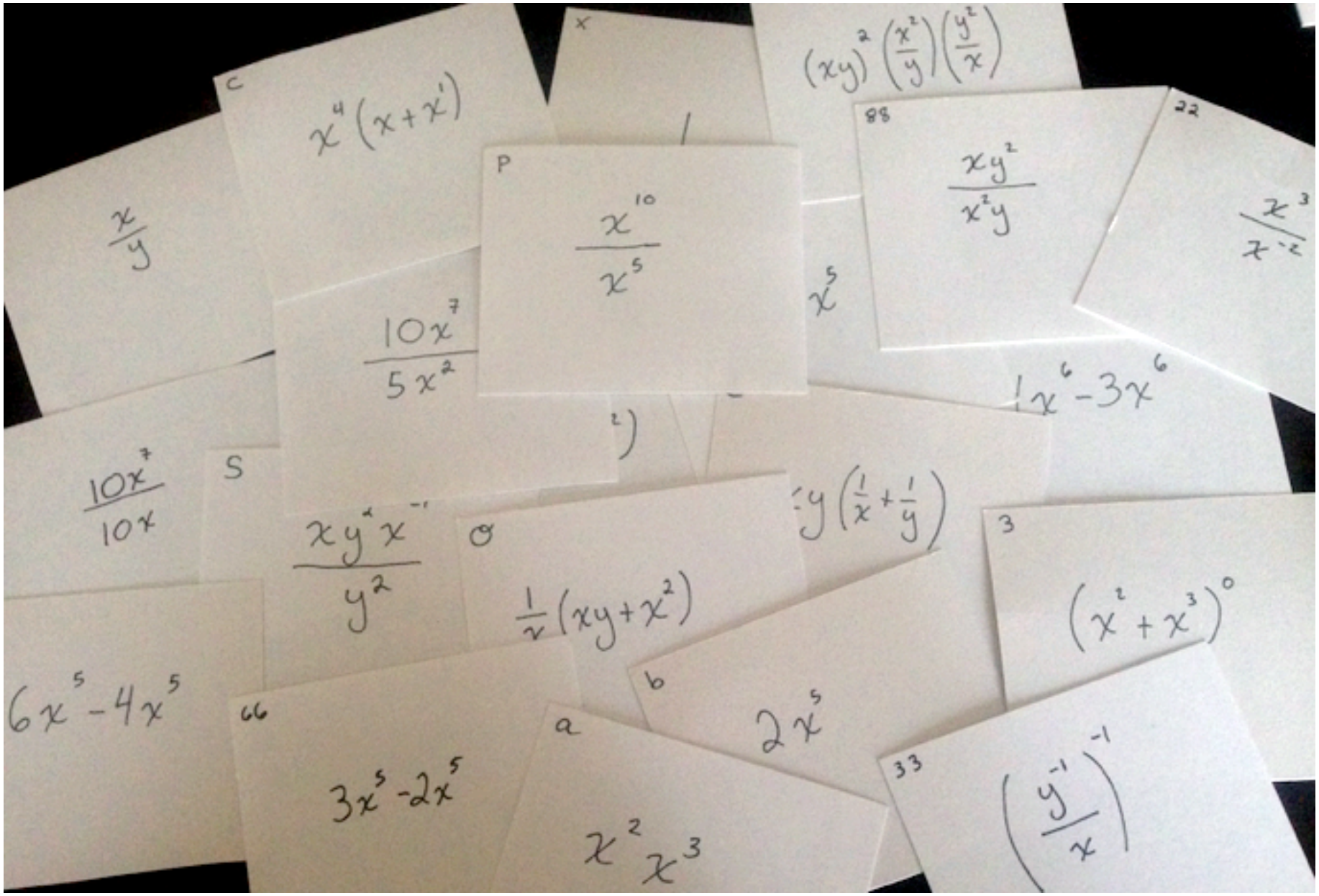
Summative Activity

Example: Exponents

Summative Activity

Example: Exponents

Students are given a set of cards with algebraic expressions involving exponents, and must sort them into piles of equivalent expressions.


$\frac{x}{y}$
$x^4(x+x^1)$
$\frac{10x^7}{5x^2}$
$\frac{x^{10}}{x^5}$
$(xy)^2\left(\frac{x^2}{y}\right)\left(\frac{y^2}{x}\right)$
$\frac{xy^2}{x^2y}$
$\frac{x^3}{x^{-2}}$
x^5
$1x^6-3x^6$
$\frac{10x^7}{10x}$
$\frac{xy^4x^{-1}}{y^2}$
$\frac{1}{2}(xy+x^2)$
$y\left(\frac{1}{x}+\frac{1}{y}\right)$
$(x^2+x^3)^0$
$6x^5-4x^5$
$3x^5-2x^5$
$2x^5$
x^2x^3
$\left(\frac{y^{-1}}{x}\right)^{-1}$

Determine which expressions are equivalent to each other. Assume that all variables are not equal to zero. When finished, you should have 12 sets of equivalent expressions; not all sets have the same number of elements. List the labels for each of the sets of equivalent expressions below.

Prerequisite Review

Prerequisite Review

Example: Lines

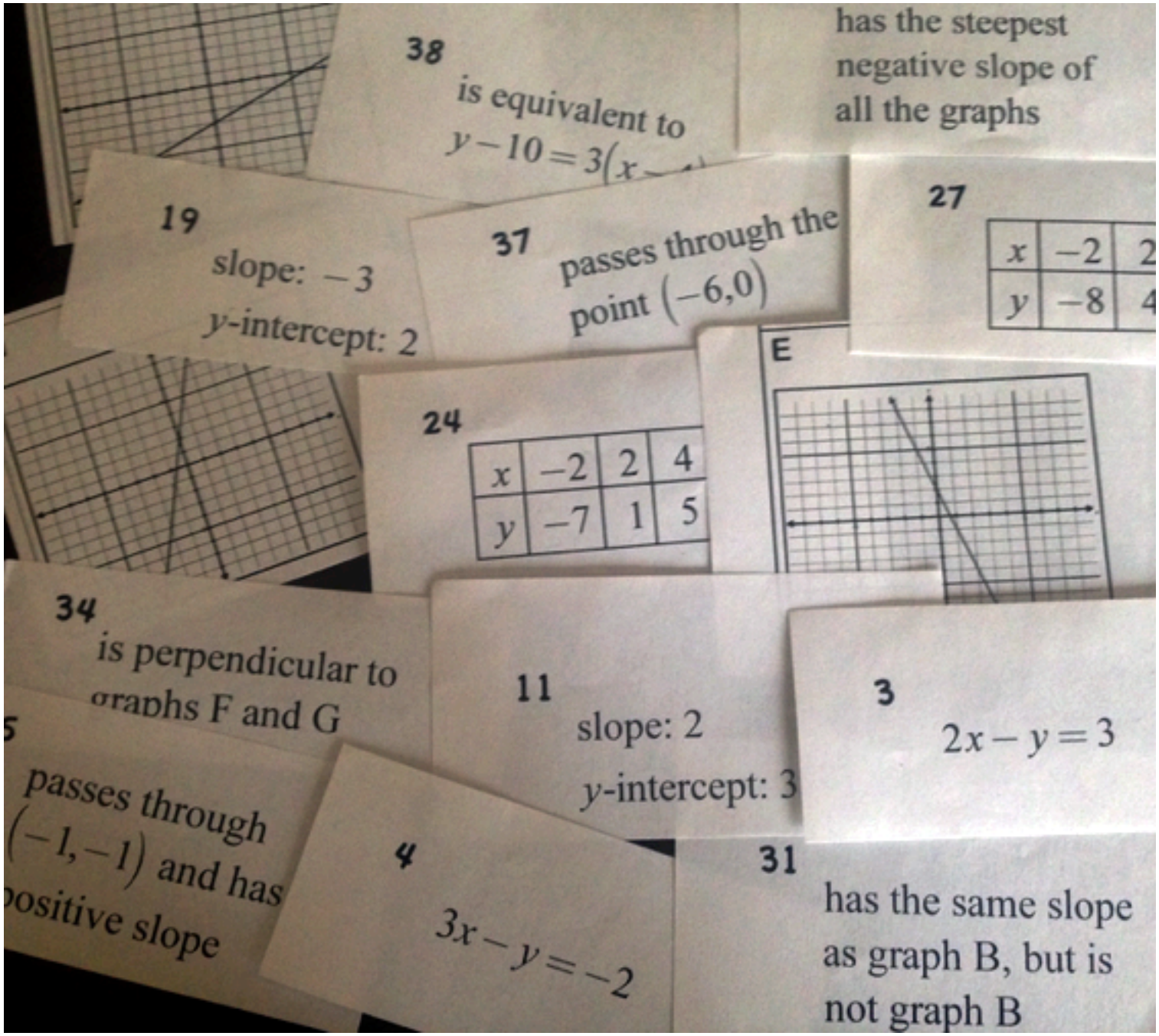
Prerequisite Review

Example: Lines

Students are given a mixed set of cards with graphs, tables of points, standard form equations, paired slopes & y-intercepts, and descriptions. Each line is represented by one card of each type, which students must match together.

Match each graph to its equation, its slope and y-intercept, its table of values, and its description.

Graph	Equation (1-10)	Slope & y-intercept (11-20)	Table (21-30)	Description (31-40)
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				


38
is equivalent to
$y-10=3(x$
has the steepest
negative slope of
all the graphs
19
slope: -3
y-intercept: 2
37
passes through the
point $(-6,0)$
27
x | -2 | 2
y | -8 | 4
E
24
x | -2 | 2 | 4
y | -7 | 1 | 5
34
is perpendicular to
graphs F and G
11
slope: 2
y-intercept: 3
3
$2x-y=3$
5
passes through
$(-1,-1)$ and has
positive slope
4
$3x-y=-2$
31
has the same slope
as graph B, but is
not graph B

Questions?

Carrie Muir
cmuir@whatcom.edu