How do we teach STEM faculty to use tactile learning activities in their classrooms?

Dr. Angie Hodge-Zickerman, Northern Arizona University

Dr. Cindy S. York, Northern Illinois University

Who we are…

Dr. Angie Hodge-Zickerman, PhD

angie.hodge@nau.edu

Dr. Cindy S. York, PhD

cindy.york@niu.edu

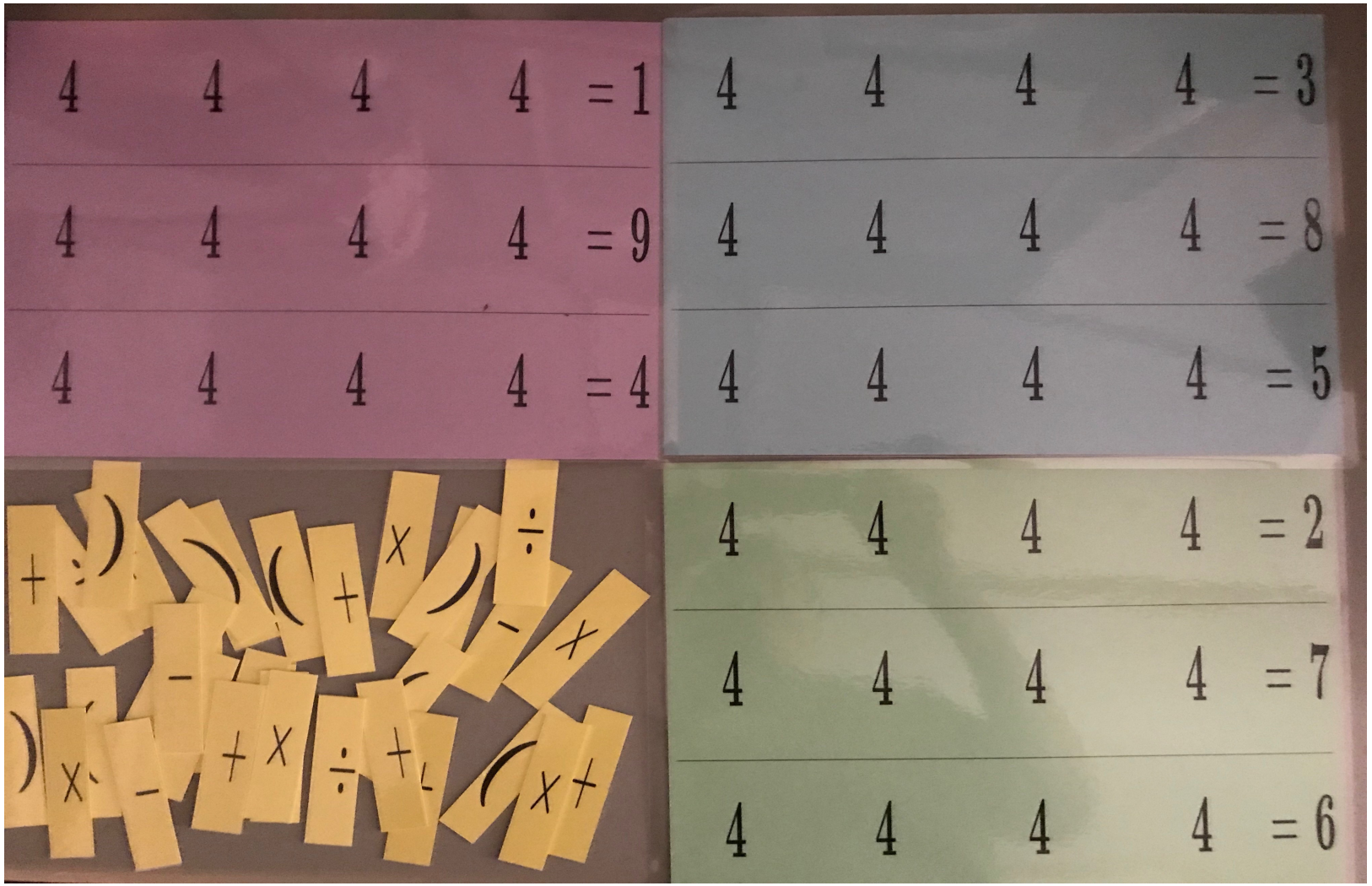
Impetus for this presentation

- TACTivities
  - Tactile learning activities
- Methods used to engage students actively in mathematics
  - Both in-person/f2f and remotely/virtually (online)
- Not restricted to mathematics (any other subject area can use these too)

What is a TACTivity?

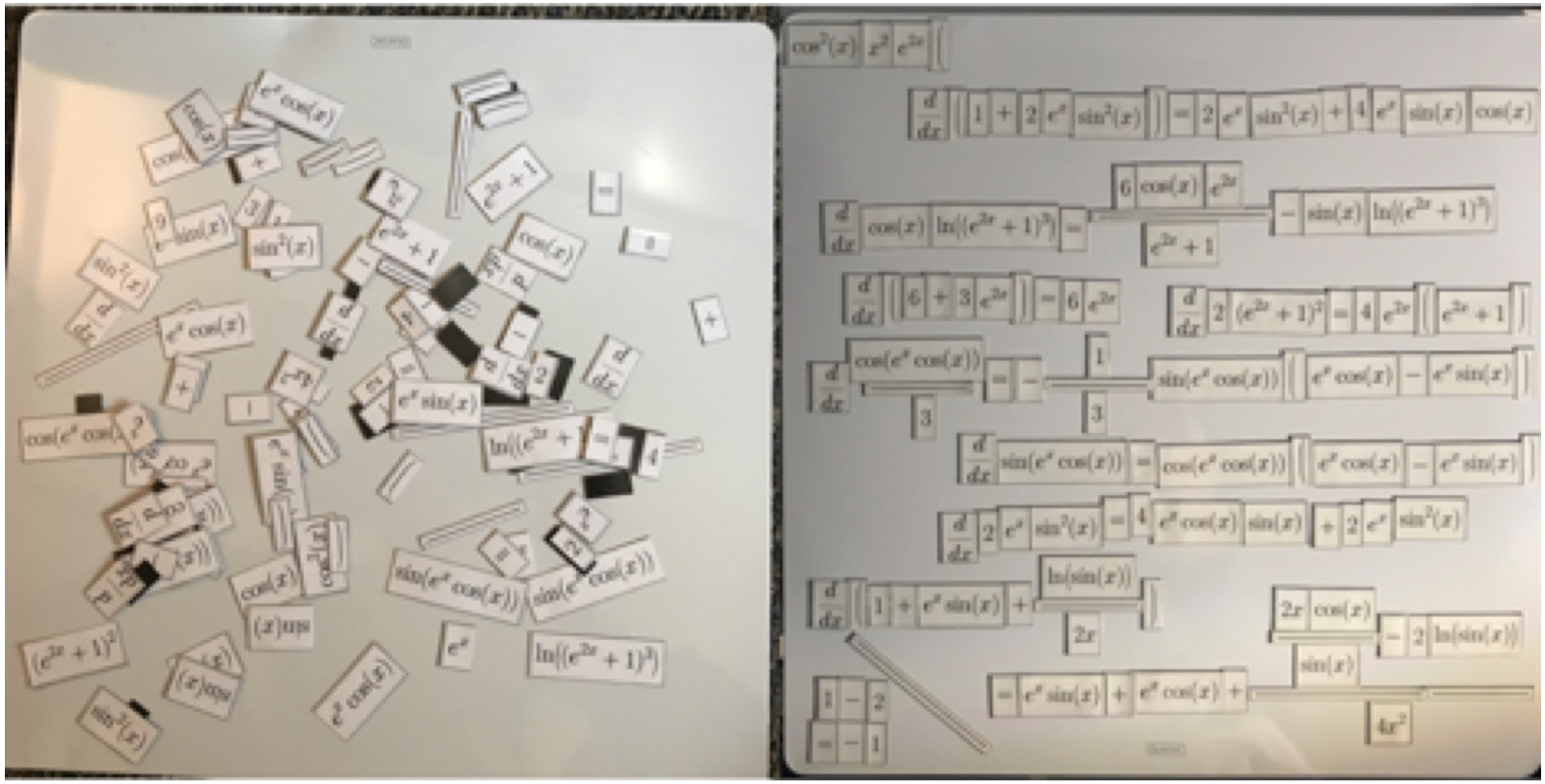
- A tactile activity that encourages collaboration and engagement.
- Tactile (movable pieces)
- Actively engages students
- Can be used to help teach or to review a concept
- Most are designed for groups of 2-4 students
- Often self-checking
- Very few (if any) directions needed

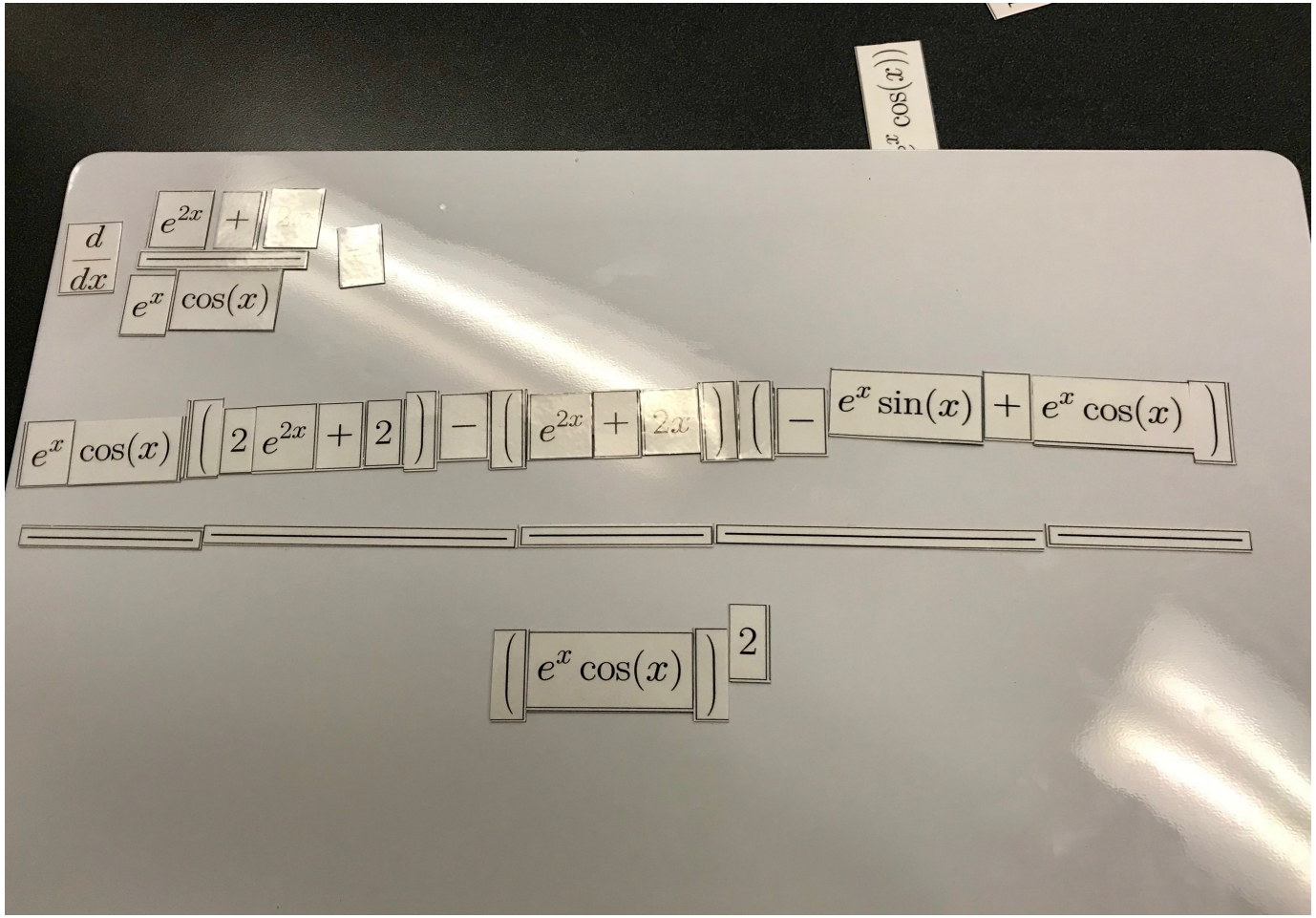
Example TACTivity


4 4 4 4 = 1
4 4 4 4 = 3
4 4 4 4 = 9
4 4 4 4 = 8
4 4 4 4 = 4
4 4 4 4 = 5
4 4 4 4 = 2
4 4 4 4 = 7
4 4 4 4 = 6

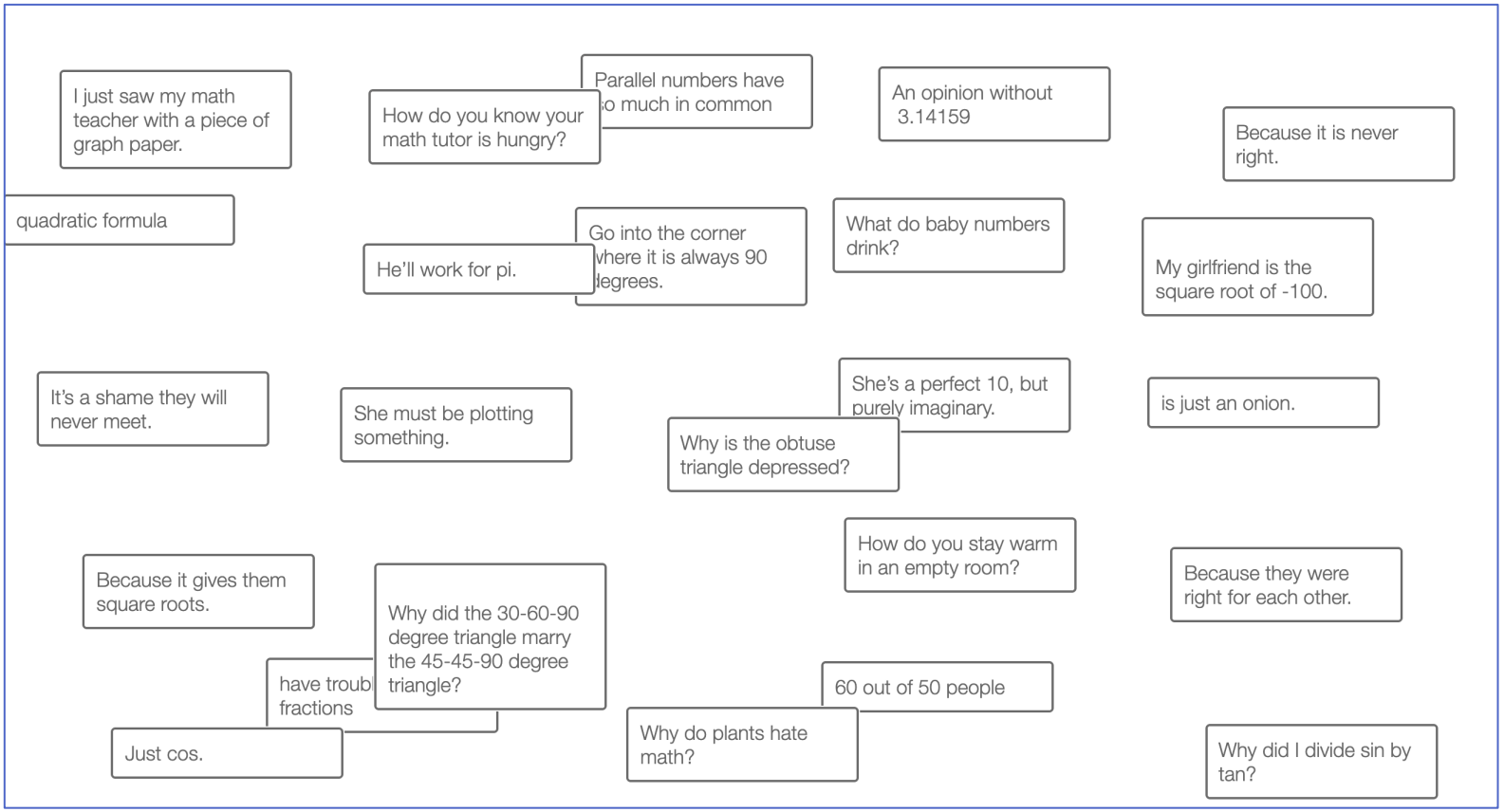
Four fours

$4\ \ 4\ \ 4\ \ 4 = 3$	$(+-+\div$
$4\ \ 4\ \ 4\ \ 4 = 8$	$)+)+\times$
	$--\div\times\times$
$4\ \ 4\ \ 4\ \ 4 = 5$	$(-+()$

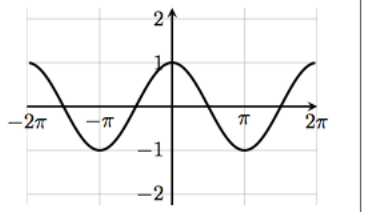
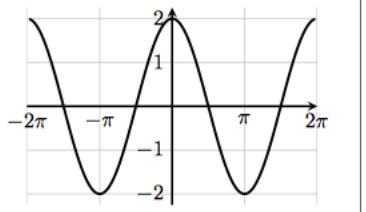



$\frac{d}{dx}$
e^{2x} + $e^x \cos(x)$
$e^x \cos(x)$ (2 e^{2x} + 2) − (e^{2x} + 2x) (− $e^x \sin(x)$ + $e^x \cos(x)$)
($e^x \cos(x)$) 2

Math Joke Sort



Sorting TACTivities

$f(x)$ 1	$\cos(x)$ L	 @
$2f(x)$ 2	$2\cos(x)$ I	 ∞

Create a virtual TACTivity!

- Desmos activity builder: https://teacher.desmos.com
- Card sort
- Ordering steps
- Interactive slides
- Google slides
- Dominoes
- Other - ???

To provide us feedback:

What faculty might need to know to use TACTivities successfully in their classroom…

padlet.com/cindyyork/sj9af47fra5khk5q