DIG INTO
PROPORTIONAL RELATIONSHIPS:
A BAGEL PROBLEM

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For more information about our core programs for middle school and intervention programs for grades 6-9, please visit:

www.mathandteaching.org

In this session, we will:

- examine properties of a proportional relationship that are revealed through different representations of linear functions

A Context

SHMEAR 'N THINGS
4 bagels for $3.00

What is the cost of one bagel?

$$\left(\frac{3.00}{4} = 0.75 \right)$$

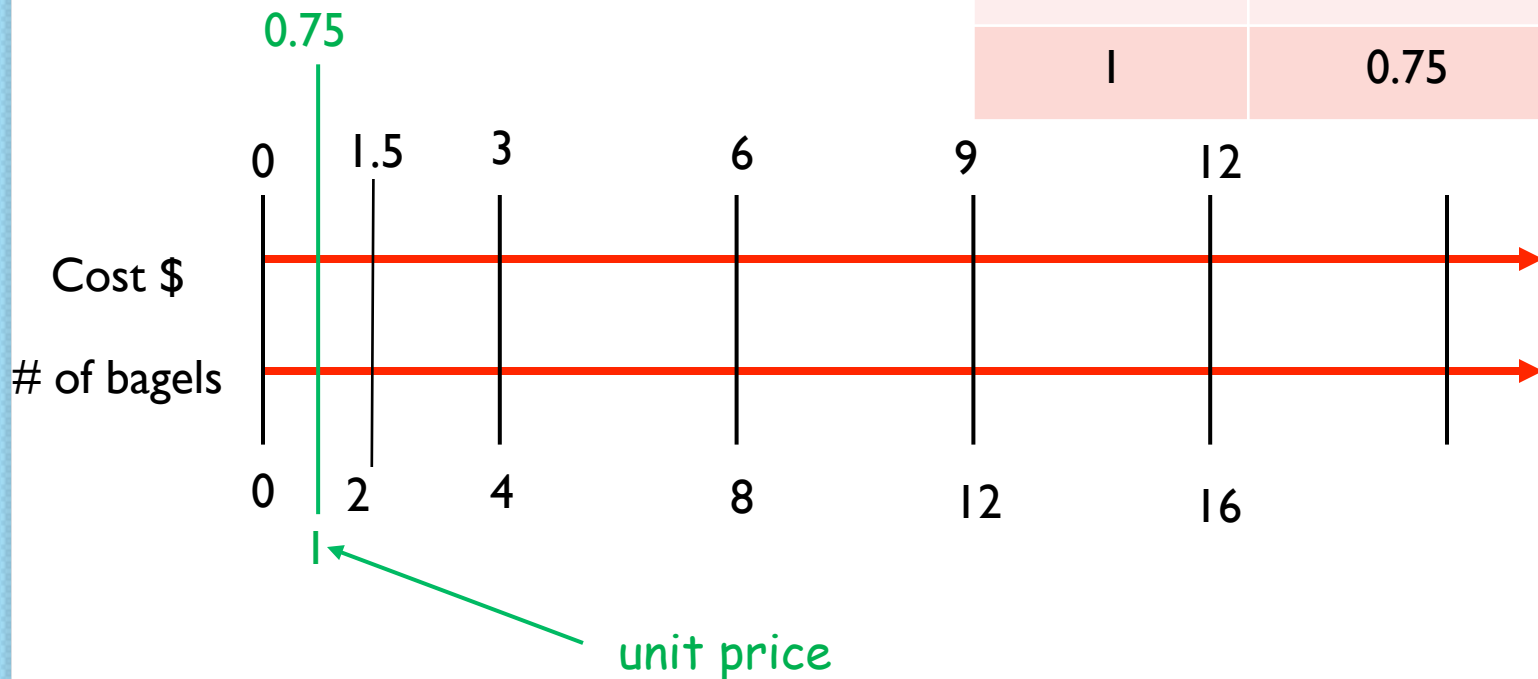At Smear 'n Things, each bagel costs $.75.

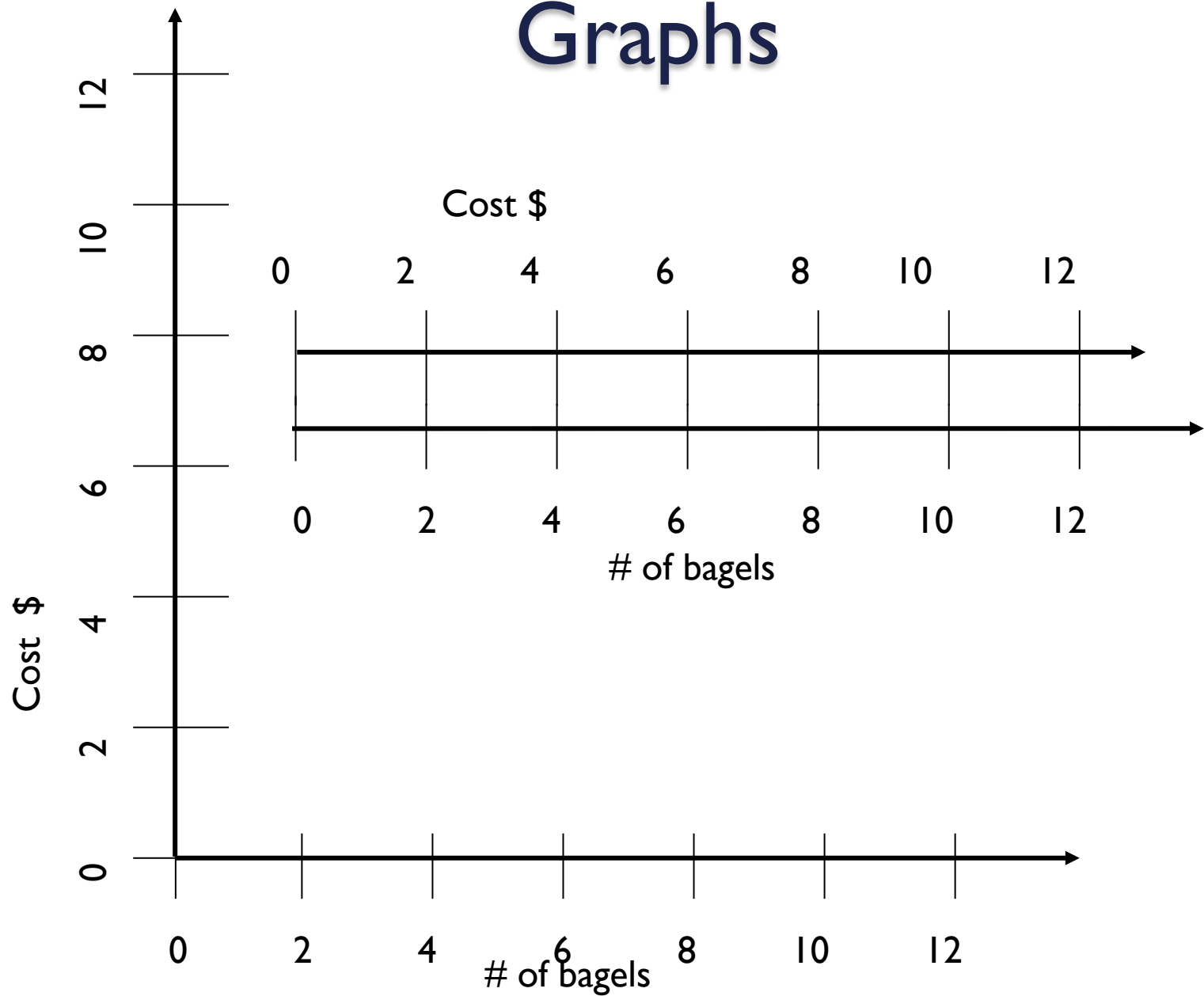# Let's dig deeper!

Double Number Line

SHMEAR 'N THINGS
4 bagels for $3.00

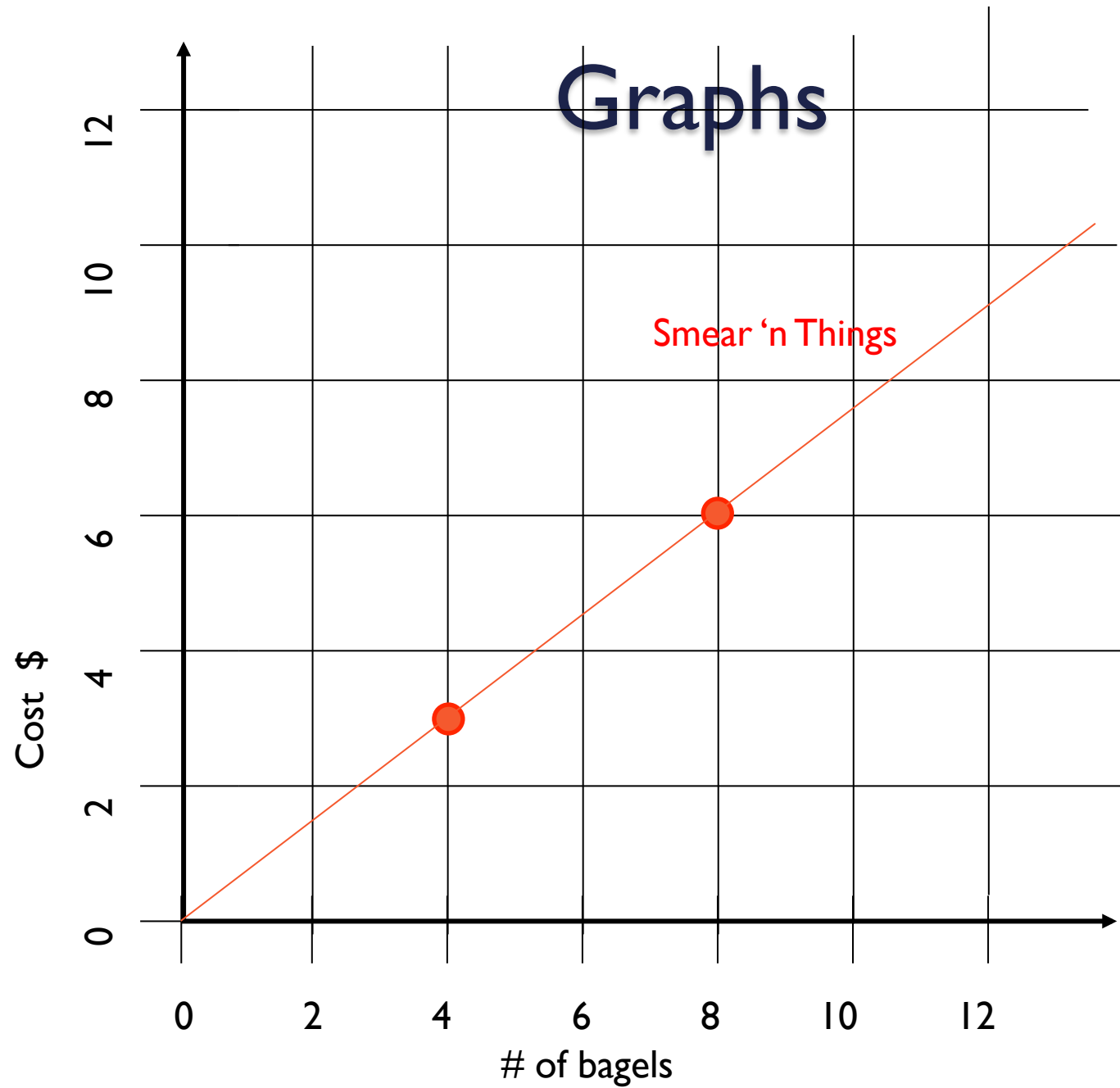| Shmear 'n Things	
# of bagels (x)	Cost in $ (y)
4	3
8	6
12	9
1	0.75

0.75

Cost $ 0   1.5   3   6   9   12

# of bagels   0   2   4   8   12   16

unit price

Graphs

Cost $

0   2   4   6   8   10   12

0   2   4   6   8   10   12

# of bagels

Cost $

12

10

8

6

4

2

0

0   2   4   6   8   10   12

# of bagels

Graphs

$$\frac{\text{rise}}{\text{run}} = \frac{75\,\text{cents}}{1\,\text{bagel}} = \$0.75\,/\,\text{bagel}$$

Slope → unit rate

$y = 0.75x + 0$

or

$y = 0.75x$

(1, 0.75)

(0,0)

y-intercept at 0

Cost (cents)

100

75

50

25

0

(0.5)

1

(1.5)

# of bagels

8
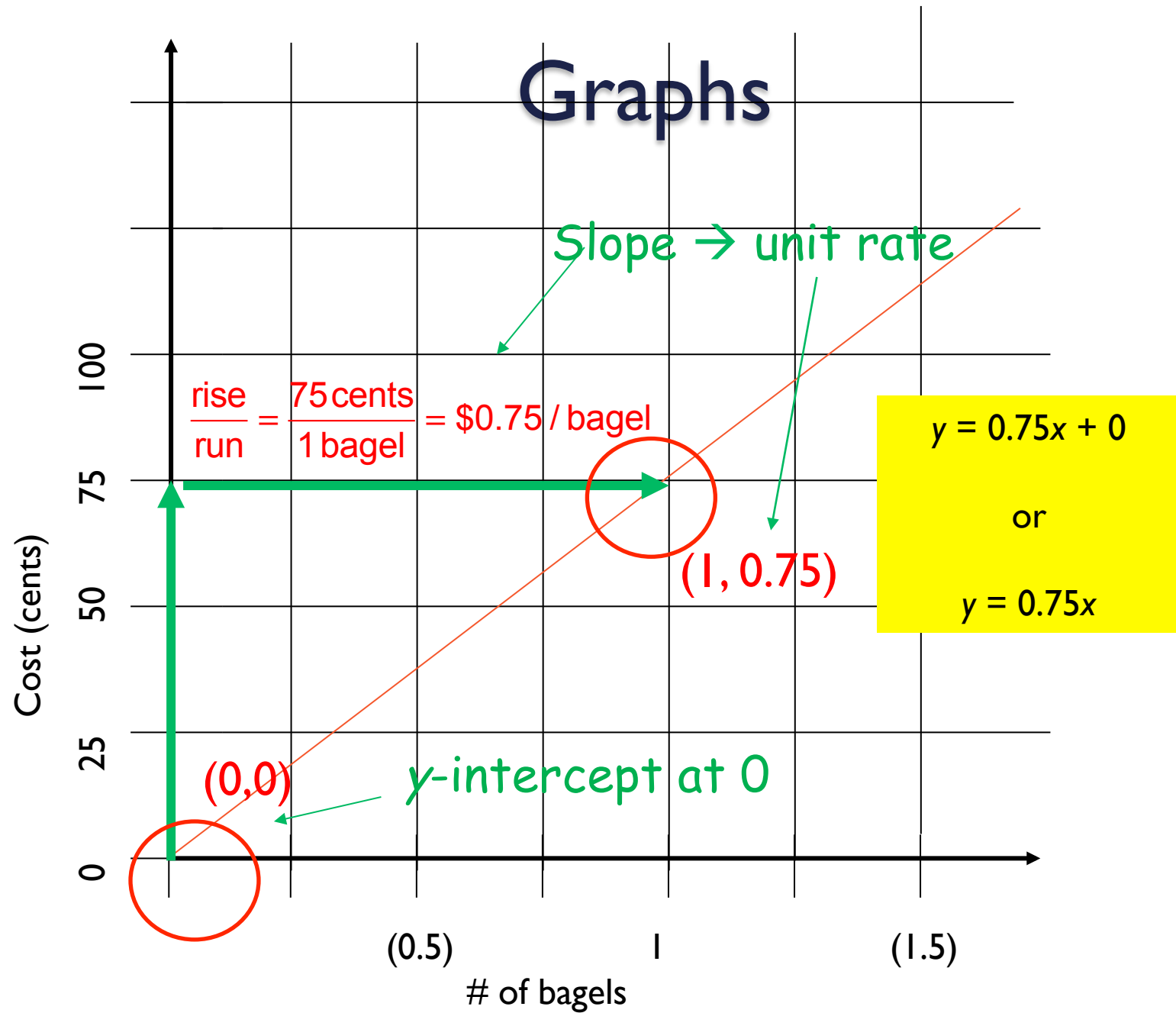
A Different Scenario

SHMEAR 'N THINGS
4 bagels for $3.00

Shmear 'n Things Pick-up in store	
# of bagels (x)	Cost in $ (y)
4	3
8	6
16	12

Shmear 'n Things Delivery charge: $5.00	
# of bagels (x)	Cost in $ (y)
4	8
8	11
16	17

$y = 0.75x$

$y = 0.75x + 5$

Graphs

Smear 'n Things (delivery)

$y = 0.75x + 5$

No!

Smear 'n Things (pickup)

$y = 0.75x$
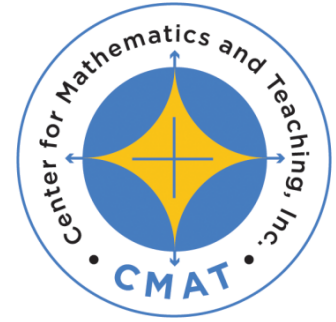
Yes!

proportional relationship?

Cost $

# of bagels

10
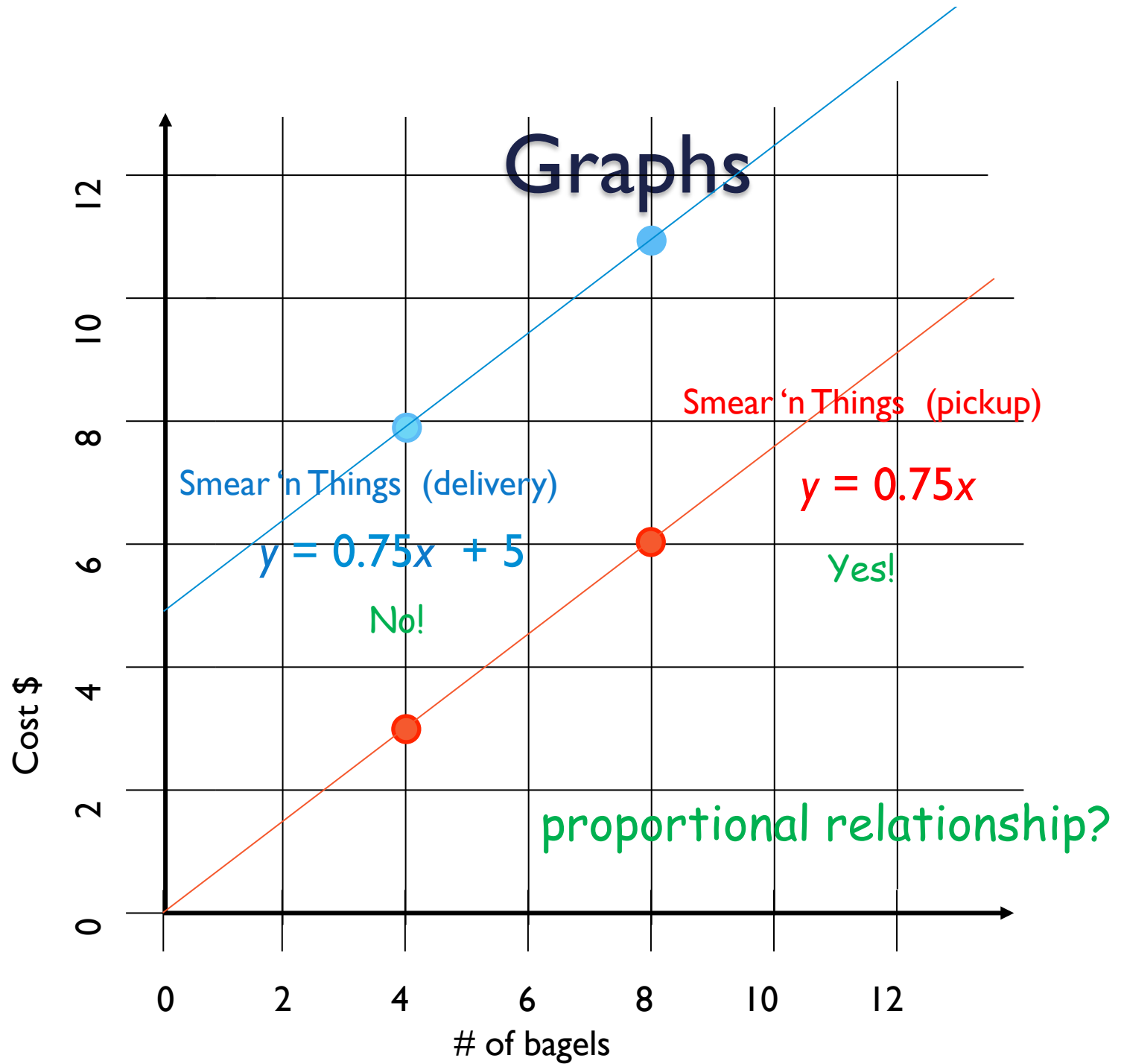
In this session, we

- connected slope and unit rate to a context

- examined properties of proportional and non-proportional relationships.

OUR PROGRAMS:

- Comprehensive 6-8 curriculum
- Customized intervention grades 6-9
- Special Education programs
- Supplemental programs
- Professional development

For more information, please visit our website at www.mathandteaching.org
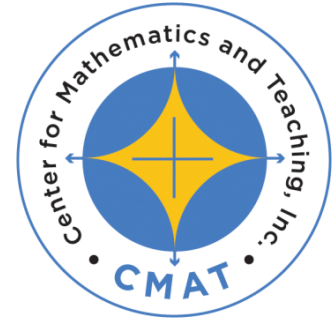
THANK YOU!

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www.mathandteaching.org/webinars