Equations in two Variables

Device Adapted From Port Charlotte Middle School Team

MAFS.8.EE.2.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*

MAFS.8.EE.2.6 Use similar triangles to explain why the slope *m* is the same distance between two distinct points on a non-vertical line in the coordinate plane; derive the equation $yy=mmmm$ for a line through the origin and the equation $y=m$x+b for a line intercepting the vertical axis at *b*.

MAFS.8.EE.3.8 Analyze and solve pairs of simultaneous linear equations.

a) Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

b) Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example,* $3x+2y=5$ *and* $3x+2y=6$ *have no solution because* $3x+2y$ *cannot simultaneously be 5 and 6.*

c) Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

The Unit Organizer

NAME _____

DATE _____

(4) BIGGER PICTURE

Equations

(2) LAST UNIT /Experience

Linear Equations

(1) CURRENT UNIT

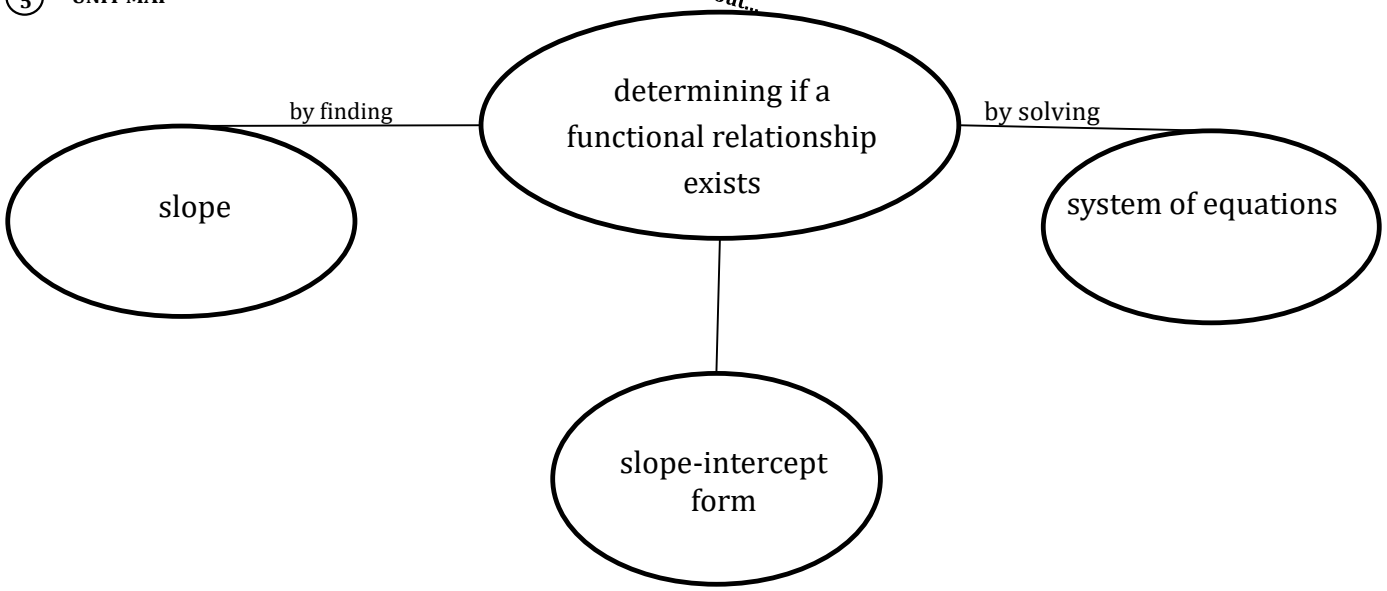
Equations in two variables

(3) NEXT UNIT /Experience

Functions

(8) Vocabulary

(5) UNIT MAP



(7) UNIT SELF-TEST QUESTIONS

1) How do I solve and represent solutions to systems of equations?
2) How do you determine if the relationship between two quantities is linear?
3) How do you determine if a relationship is proportional?
4) What are three ways you can find slope?
5) Describe the relationship between unit rate and slope?
6) If you had to define slope and y-intercept, what would you say?

(6) SELF CHECK-IN

The Unit Organizer

NAME
DATE

9 Expanded Unit Map

Equations in two variables

is about...

- determining if a functional relationship exists
  - by finding
    - slope (rate of change)
      - using the
        - Slope formula
          - which is
            - $m = \frac{y_2 - y_1}{x_2 - x_1}$
      - using a
        - graph
          - knowing
            - $\frac{rise}{run}$
              - such as those on the
                - frame
      - using a
        - table
          - knowing
            - $\frac{change\ in\ y}{change\ in\ x}$
      - in a
        - Word problem
          - looking for
            - per or each
  - by using
    - slope-intercept form $y = mx + b$
      - which includes
        - slope = m
          - represents
            - change
        - y-intercept (0,b)
          - represents
            - start
  - by solving
    - systems of equations
      - By finding the
        - Shared Point
          - on a graph
            - graphically
          - With the equation
            - algebraically
        - the solutions are
          - - one solution
            - no solution
            - infinite solutions

10 Rate Yourself

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

11 Why?

The Unit Organizer

NAME _____

DATE _____

(4) BIGGER PICTURE

(2) LAST UNIT /Experience

(1) CURRENT UNIT

(3) NEXT UNIT /Experience

(8) Vocabulary

(5) UNIT MAP

is about...

UNIT SELF-TEST QUESTIONS (7)

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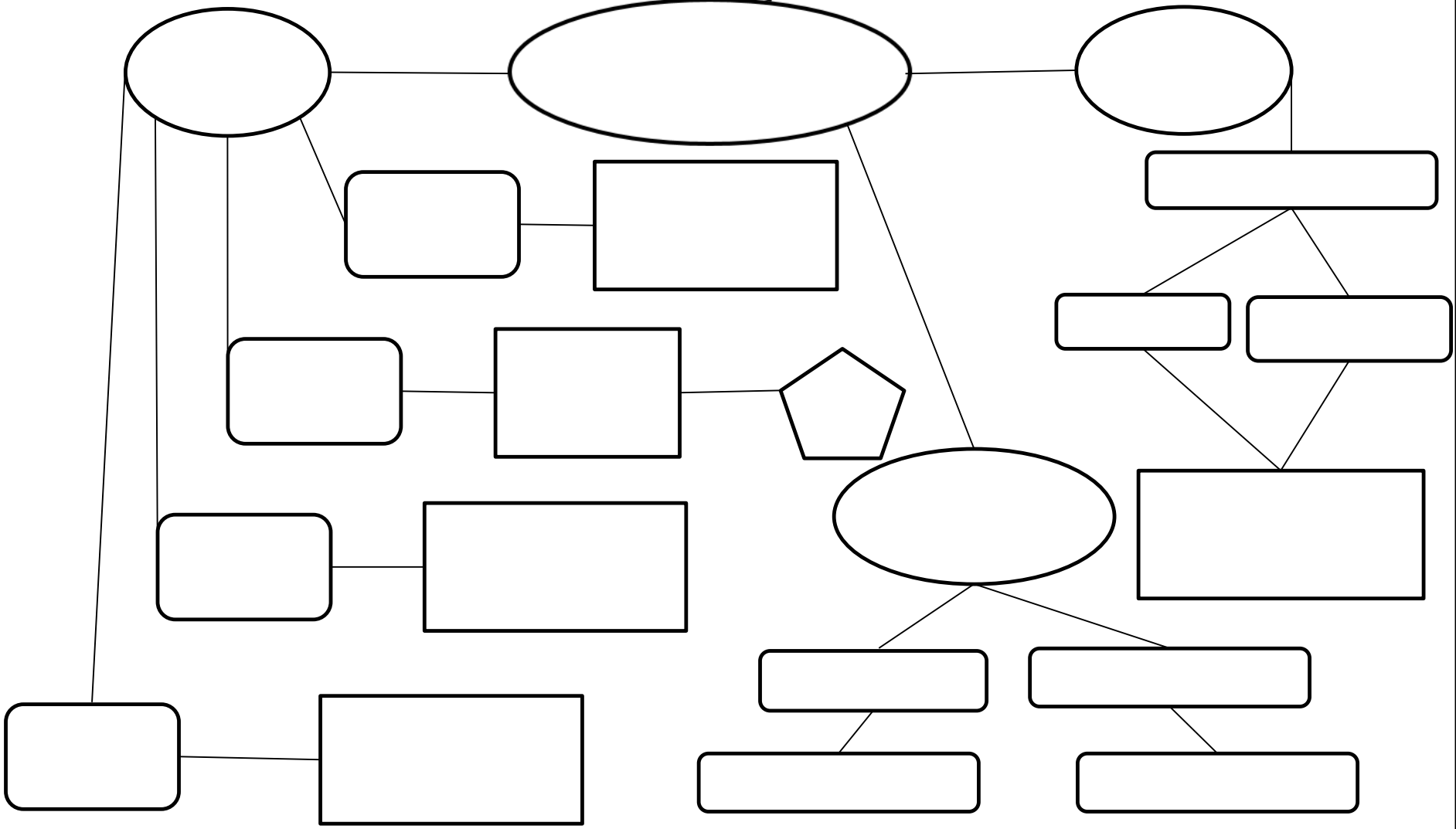
9 **Expanded Unit Map**

is about...



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11 **Why?**

Equations in two variables