

DAY 4: Which One Is Easier?

Materials

Copies: 4.1 Which One is Easier?
4.2 Slope-Intercept vs. Standard Form (one sheet per group of 4)
Ticket Out the Door Day 4

Supplies: Highlighters (one per student)
Construction Paper (one per group of 4)
Tape or glue (one per group of 4)
Scissors (one per group)

Objective:

Students will graph the same equations first using slope and y -intercept, then the x -intercept and y -intercepts to make conclusions about which method was easier depending on the given equation.

Student Talk Strategy

Report to a Partner for 4.1
Think-Write-Pair-Share for 4.1 & 4.2

Academic Language Use

trend line - Straight or curved line that indicates the general pattern or direction of data

y -intercept- The coordinate point where the graph of the line passes through the y -axis. In the context of patterns, the y -intercept is the "starting point" or "step zero" meaning the value of y , when $x = 0$.

x -intercept- The coordinate point where the graph of the line passes through the x -axis. The x -intercept is the value of x , when $y = 0$.

Domain- Set of all x input values that "make sense" or will "work" for the function.

Range- Set of all possible resulting y values after substituting in the x values of the domain.

Standard Form of a linear equation: $Ax + By = C$

Which One's Easier? (25 min)

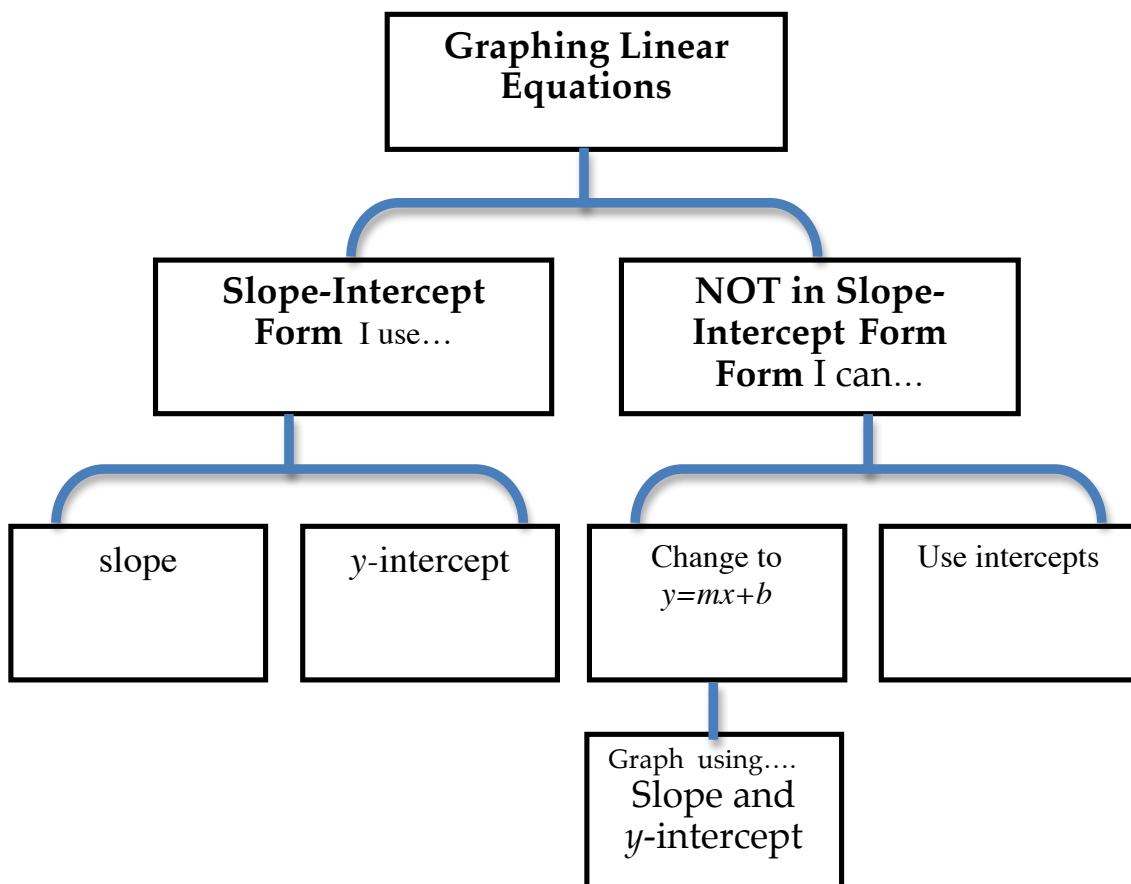
Pass out 4.1 and highlighters to each student. Put the students in groups of two. Explain to students that they will graph equation #1 using two different methods: A) by switching the equation to slope-intercept form; and B) using the cover up method to find the intercepts. *Note: Equation #1 will be tricky for students to graph since there are fractions. Using report-to-a-partner, guide students through #1 asking questions as you go such as, "What is my first step to switch the equation into slope-intercept form?", "What is my next step?" etc. And for method B, if I cover up the $3x$, what is the value of y ?", "Will my two graphs look the same? Why?" etc. Once all students have graphed both correctly, have them use thumbs up or down to vote if the equations graphed are the same or not.

After the graphs are done, using Think-Write-Pair-Share, have students silently think about which method they felt was easier for them. Ask students to highlight the method they felt was easiest; then write down why they felt this way in the space provided below the graphs on 4.1. After writing their response, students will share their ideas with a partner. Randomly select a couple students to share their answers with the group.

Repeat the procedure with equation #2, but allow partners to graph on their own while circulating the room to help struggling students. Bring the class together for another Think-Write-Pair-Share to reflect on which method was easier this time.

Students will now complete part 2 with their partners, and then share out to the class. The big idea here is for students to come to their own conclusions & understanding about choosing one method over another depending on the given equation. There is no right or wrong answer for which method is easiest. Validate all sensible reasoning when calling upon students to share.

Lastly, students will use their conclusions and complete the thinking (tree) map below:



Slope-Intercept Form vs. Standard Form Part 2 (25 min)

Put in groups of four. Have the following available at the front of the classroom for each group: activity page 4.2, a pair of scissors, construction paper, and tape or glue (one of each for each group of four). Assign each student in the groups a role: 1) pick up materials for the group 2) cut out the eight rectangles 3) math checker 4) glue or tape the rectangles to the construction paper.

After 4.2 is cut out, each student in the group of four will get one graph and one equation. Each student needs to complete the math on his or her equation card, then the task for the group is to match up the correct graph for each equation. Then they will tape or glue them onto the construction paper. Model each of the group roles and be sure students are clear on their task. Circulate the room to help struggling groups.

Ticket out the Door (10 minutes):

Pass out the Ticket out the Door and have the students raise their hands when finished (so that you can check it and then dismiss them).