Agenda

- Seatwork
- Examples
- Discussions
- Handout
- Conclusion – One minute game
Linear and Absolute Value Equations and Inequalities

A2.2.1 - Graph absolute value equations and inequalities
Graph the following functions using your calculator. Then sketch the graphs on grids.

- a. $y = |x| + 3$
- b. $y = |x| - 2$
Describe each equation in relation to its parent function.

a. Vertical shift up three units.
b. Vertical shift down two units.
y = |x| + k

- When the equation of an absolute value function is written in the form \( y = |x| + k \), how does the graph compare to the graph of \( y = |x| \)?

It is shifted vertically. If \( k \) is positive, it is shifted up \( k \) units. If \( k \) is negative, it is shifted down \( k \) units.
Graph the following functions using your calculator. Then sketch the graph on a grid.

- a. $y = |x|
- b. y = |x + 3|
- c. $y = |x - 2|$
Compare

- How do the graphs of the three absolute value equations compare to one another?

All have the same “v” –like shape 1st one is the parent function, but the other graphs have been translated horizontally. The graph of $y = |x + 3|$ is shifted 3 units to the left and the graph of $y = |x - 2|$ is shifted 2 units to the right.
y = |x + h|

- When equation of an absolute value function is written in the form of \( y = |x + h| \), how does the graph compare to the graph of \( y = |x| \)?

It is shifted horizontally. If \( h \) is positive, it is shifted to the left \( h \) units. If \( h \) is negative, it is shifted to the right \( h \) units.
Handout

- Graph – Number 12 (ELMO)

- Describe – Number 13 (ELMO)

- \[ y = a|x - h| + k \] – Number 14 (Exceeds expectations optional)

- Translations – Number 21 (Exceeds expectations optional)
Graph each absolute value inequality.

- a. $y > -|x + 2| - 3$
- b. $2y + 3 \leq -|x - 5|$
Conclusion

- One Minute Game
  - Divide into teams
  - You have one minute to answer these questions:
    - What was the main thing you learned today
    - Tell me two questions that you have remaining about this lesson.
    - What else would you like to know about this topic?

Cooperative Learning activity