



Mememes > GIFs

Inequalities With One Variable



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Grade Level	7th – 8th Grade	Time Frame	1-2 class period(s)
Subject	Mathematics	Duration	90 minutes
Course	Middle School Mathematics, Pre-Algebra		

Essential Question

How can one-variable inequalities be used to represent relationships?

Summary

This lesson focuses on the relationship between a set of numbers and the constraints of the inequality. The goal is to find possible solutions for one-variable inequalities. Students will write, graph, and identify solutions of inequalities and connect them back to real-world scenarios when applicable. This lesson includes optional modifications for distance learning. Resources for use in Google Classroom are included.

Snapshot

Engage

Students engage in a card sort to match inequalities with situations.

Explore

Students explore possible solutions to inequalities with a t-chart and number lines.

Explain

Students discuss how they determined possible solutions and receive clarification on misconceptions about solving inequalities.

Extend

Students create an inequality meme that satisfies two conditions.

Evaluate

Students complete an exit ticket to determine which student made a mistake solving the inequality.

Standards

Oklahoma Academic Standards for Mathematics (Grade 7)

7.A.3.3: Represent real-world or mathematical situations using equations and inequalities involving variables and rational numbers.

Oklahoma Academic Standards for Mathematics (Grade 7)

PA.A.4.3: Represent real-world situations using equations and inequalities involving one variable.

Attachments

- [Card Sort—Memes _ GIFs \(Pre-Algebra\) - Spanish.docx](#)
- [Card Sort—Memes _ GIFs \(Pre-Algebra\) - Spanish.pdf](#)
- [Card Sort—Memes _ GIFs \(Pre-Algebra\).docx](#)
- [Card Sort—Memes _ GIFs \(Pre-Algebra\).pdf](#)
- [Card Sort—Memes _ GIFs \(Seventh Grade\) - Spanish.docx](#)
- [Card Sort—Memes _ GIFs \(Seventh Grade\) - Spanish.pdf](#)
- [Card Sort—Memes _ GIFs \(Seventh Grade\).docx](#)
- [Card Sort—Memes _ GIFs \(Seventh Grade\).pdf](#)
- [Exit Ticket—Memes _ GIFs \(Pre-Algebra\) - Spanish.docx](#)
- [Exit Ticket—Memes _ GIFs \(Pre-Algebra\) - Spanish.pdf](#)
- [Exit Ticket—Memes _ GIFs \(Pre-Algebra\).docx](#)
- [Exit Ticket—Memes _ GIFs \(Pre-Algebra\).pdf](#)
- [Exit Ticket—Memes _ GIFs \(Seventh Grade\) - Spanish.docx](#)
- [Exit Ticket—Memes _ GIFs \(Seventh Grade\) - Spanish.pdf](#)
- [Exit Ticket—Memes _ GIFs \(Seventh Grade\).docx](#)
- [Exit Ticket—Memes _ GIFs \(Seventh Grade\).pdf](#)
- [Lesson Presentation—Memes _ GIFs \(Pre-Algebra\).pptx](#)
- [Lesson Presentation—Memes _ GIFs \(Seventh Grade\).pptx](#)
- [What Numbers Work—Memes _ GIFs \(Pre-Algebra\) - Spanish.docx](#)
- [What Numbers Work—Memes _ GIFs \(Pre-Algebra\) - Spanish.pdf](#)
- [What Numbers Work—Memes _ GIFs \(Pre-Algebra\).docx](#)
- [What Numbers Work—Memes _ GIFs \(Pre-Algebra\).pdf](#)
- [What Numbers Work—Memes _ GIFs \(Seventh Grade\) - Spanish.docx](#)
- [What Numbers Work—Memes _ GIFs \(Seventh Grade\) - Spanish.pdf](#)
- [What Numbers Work—Memes _ GIFs \(Seventh Grade\).docx](#)
- [What Numbers Work—Memes _ GIFs \(Seventh Grade\).pdf](#)

Materials

- Lesson Slides (seventh grade and pre-algebra)
- Card Sort handout (seventh grade and pre-algebra)
- "What Numbers Work?" (seventh grade and pre-algebra)
- Exit Ticket handout (seventh grade and pre-algebra)
- Internet-connected devices for student access to meme generator website:
<https://imgflip.com/memegenerator>

Engage

Teacher's Note: Seventh Grade And Pre-Algebra Options

This lesson content is suited for both seventh-grade math and pre-algebra courses, but there are different delivery materials for the two courses. Select the attached materials that are appropriate for the course you teach.

Teacher's Note: Lesson Preparation

Prior to the lesson, print the appropriate card sort handout for your course level and cut out enough materials for your students to perform activity in pairs.

Display the attached **Lesson Slides** and introduce the lesson title on **slide 1**: Memes > GIFs. To engage the students, start with a poll related to this title. Ask the students to raise their hands if they think memes are greater (or better) than GIFs. Then ask the students to raise their hands if they think GIFs are greater than memes.

Briefly introduce the lesson's Essential Question on **slide 3**: How can one-variable inequalities be used to represent relationships? Ask students to work in pairs to complete the attached [Card Sort](#) strategy that involves matching various scenarios with one-variable inequalities. Allow about five minutes for this activity before asking partner pairs to find another pair of students to compare answers. Instruct the groups to discuss how they determined the matches by asking the other pair guiding questions like "Why did you put those two cards together?" or "How do you know the inequality sign is correct?"

Optional Modification For Distance Learning

To make this phase of the lesson accessible for online or distance learners, a digital polling system ([Mentimeter](#), for example, or a similar application) may be used for the voting activity in the first portion. Additionally, to make the Card Sort activity accessible for distance learners, you may choose to invite students to print and cut out their own Card Sorts. A web-based platform (e.g. Google Classroom) or a digital platform for sorting (e.g., [Desmos](#), [Quizlet](#)) can also be used to create a digital Card Sort. Students can place the cards in order and describe their thought processes for each step as part of an online discussion. [Download all attachments](#) to use this lesson in [Google Classroom](#).

Explore

Go to **slide 6**. With students still in pairs, pass out the "What Numbers Work?" handout. Ask students to make a list of possible numbers that work for the given inequality and also numbers that do not work. Encourage students to discuss their reasoning with their partner. Once a list is compiled, students will show the numbers that work on the number line. This activity allows students to visualize what it means to graph the inequality. Students will then answer the question, "Why do certain numbers not fit?"

Teacher's Note: Student Conversations

While students are working on the "What Numbers Work?" handout, spend time walking around the room to help guide discussion if needed. Listen for discussions that lead to steps for solving inequalities or connections to solving equations.

Optional Modification For Distance Learning

To make the above accessible for online or distance learning, consider creating multiple copies of the attached "What Numbers Work?" handout using Google Docs. Assign two students to each copy of the "What Numbers Work?" handout and have them collaborate virtually. Students can add notes to the document and collaborate as a group using the "chat" feature in the document. You may also consider making this activity a discussion board post to which your students can respond directly. [Download all attachments to use this lesson in Google Classroom.](#)

Explain

Teacher's Note: Seventh Grade And Pre-Algebra Differentiation

The Explain portion of the lesson differs for the seventh grade and pre-algebra versions. Please refer to the appropriate course instructions below.

Seventh Grade Lesson: Go to **slide 8**. Staying in pairs, have pairs again partner with another pair for further discussion. Ask groups to reflect on their findings from the "What Numbers Work?" handout.

Pose the question shown on **slide 9** to the entire class: How can you solve the following problem without creating a table? $X - 3 < 15$

Teacher's Note: Isolating X

This slide allows you to discuss how to solve the problem by isolating x . Make sure the students understand the process in order to be able to complete the lesson.

Continue to **slides 10 and 11**, and have students try the problem on the slide. Slide 10 displays a problem for students to try on their own. Slide 11 contains a challenge question to further understanding. Clarify misconceptions as students are solving and graphing.

Pre-Algebra Lesson: Display slide 8. This slide includes the steps for solving inequalities.

Teacher's Note: Solving Multi-Step Inequalities

This slide allows you to discuss ways to solve multi-step inequalities. The steps listed are general steps for doing so. Make sure the students understand the process in order to be able to complete the lesson.

Continue to **slide 9**. Ask the class to help you list the similarities and differences between solving equations and solving inequalities on the board. You can type their responses directly into the slide show.

Sample Student Responses

An example of similarity is: completing the inverse of the operations. An example of a difference is: flip the inequality sign when multiplying or dividing by a negative number.

For slides 10 and 11, have students try the problem on the slide. Slide 10 displays a problem for students to try on their own. Slide 11 contains a challenge question to further understanding. Clarify misconceptions as students are solving and graphing.

Optional Modification For Distance Learning

Depending on the technology being utilized, you may want to discuss these questions as a class in a group chat or digital document. You may also consider making this activity a discussion board post to which your students can respond directly. [Download all attachments to use this lesson in Google Classroom.](#)

Extend

Display **slide 13**. Ask students to create a meme that either represents one of the situations from the card sort in the Engage section of the lesson or a scenario that they invent on their own (with your approval). Students will use their internet-connected devices to access the [Meme Generator](#) (the full URL is listed in the resources below). An example is shown on the slide.

Display the memes around the room by having students leave their meme up on the screen. Have students complete a [Gallery Walk](#) strategy to view the creations of other students.

Optional Modification For Distance Learning

The creation of a meme should not require any modification for online or distance learning. If conducting this lesson in an online or distance learning environment, you may choose to omit the Gallery Walk activity, however. You can substitute a peer review activity with a website such as [VoiceThread](#). With VoiceThread, you can upload students' posters to the site beforehand. Then, students can choose whether they would like to make a quick video, a voice memo, or a written note to give feedback on other students' memes. [Download all attachments to use this lesson in Google Classroom.](#)

Evaluate

Introduce an [Exit Ticket](#) strategy and distribute a copy of the attached handout to each student. Ask them to determine which student in the examples shown got the incorrect answer and justify the rationale behind their choice. Collect the exit tickets at the end of class. The exit tickets will help you evaluate the students' understanding of the lesson so you can clarify any remaining misconceptions about solving inequalities.

Optional Modification For Distance Learning

The Exit Ticket handout can be distributed digitally or posted to a discussion board to aggregate student responses. [Download all attachments to use this lesson in Google Classroom.](#)

Resources

- K20 Center. (n.d.). Bell Ringers and Exit Ticket. Strategies. <https://learn.k20center.ou.edu/strategy/125>
- K20 Center. (n.d.). Card Sort. Strategies. <https://learn.k20center.ou.edu/strategy/147>
- K20 Center. (n.d.). Desmos. Tech Tools. <https://learn.k20center.ou.edu/tech-tool/1081>
- K20 Center. (n.d.). Gallery Walk / Carousel. Strategies. <https://learn.k20center.ou.edu/strategy/118>
- K20 Center. (n.d.). Google Classroom. Tech Tools. <https://learn.k20center.ou.edu/tech-tool/628>
- K20 Center. (n.d.). Mentimeter. Tech Tools. <https://learn.k20center.ou.edu/tech-tool/645>
- K20 Center. (n.d.). Quizlet. Tech Tools. <https://learn.k20center.ou.edu/tech-tool/666>
- Meme generator. (n.d.). Meme Generator. <https://imgflip.com/memegenerator>