**Day 1**

Benchmark:

**9-12.A.1.4** Explain that the distance between two numbers on the number line is the absolute value of their difference.

**9-12.A.1.14** Evaluate polynomial, rational, radical, and absolute value expressions for one or more variables

Learning Objective:

Students will be able to recognize and evaluate a mathematical equation that has an absolute value sign with an 80% accuracy rate

Assessment:

Independent practice

Accommodations:

Tier 2:

Tier 3:

Materials:

Worksheet from website

|  |  |  |
| --- | --- | --- |
| **Strategy** | **Time** | **Activity** |
| Bell work | 5 | Have students write their own definition of absolute value and have basic absolute values on the board for students to do (i.e. |-3| = ? , |4| = ?, |-11| = ? ) Students can also got to the Math Dude Video = <http://www.montgomeryschoolsmd.org/departments/itv/MathDude/MD_Algebra1_1-5.shtm>  Also for more references you can go to  <http://www.purplemath.com/modules/absolute.htm> for more examples and helpful hints |
| Introduction/Engage | 5 | Engage the students and ask them to evaluate an absolute value when an operation and a variable are added to these equations. Introduce the evaluation process and how absolute value has two possible answers. Video (website) goes through the evaluation. <http://www.5min.com/Video/Solving-Absolute-Value-Equations-160954588> |
| Guided Practice | 15 | Guide students through a few evaluations equations and graph the values (equations are on worksheet in the independent practice). Show students the parent function |
| Independent Practice/ Homework | 15 | Have students work on evaluating absolute value <http://www.kutasoftware.com/FreeWorksheets/Alg1Worksheets/Absolute%20Value%20Equations.pdf> |
| Closure | 5 | Have students write down the process of what they have learned today, what they liked & disliked, and if there are any further concerns. |

Reflection:

Another good website for evaluating absolute value is:

<http://www.slideshare.net/rfant/absolute-value-equations-algebra-2>

For family functions as well:

[www.mathwarehouse.com/geometry/parabola/square\_root\_functions.php](http://www.mathwarehouse.com/geometry/parabola/square_root_functions.php)

**Day 2**

Benchmark:

**9-12.A.2.2** Determine whether a relation defined by a graph, a set of ordered pairs, a table of values, an equation, or a rule is a function

Learning Objective:

Students will be able to graph an absolute value function with an 80 % accuracy rate

Assessment:

Ticket out the door

Accommodations:

Tier 2:

Tier 3:

Materials:

|  |  |  |
| --- | --- | --- |
| **Strategy** | **Time** | **Activity** |
| Bell work | 5 | Ask students to sketch the graph of y = x and y = |x| on the same coordinate axis. Compare and contrast the graphs. Identify the domain and range for each graph |
| Explore/discuss | 10 | Using the graphing calculators, explore the following equations:  Y = |x|, Y= 2|x|, Y = -|x|, Y = |x| + 4, Y = |x| - 2, Y = |x+1|, Y = |x-1|, Y = |x-3|+2, Y = -|x+2|-1  Discuss with the class the effects of a, b, c on the following equation: Y = a |x + b|+ c |
| Guided Practice | 10 | Give the class several equations (at teachers’ discretion) and ask them to describe the graphs without sketching them. Allow your students to check their descriptions by graphing the equations with a calculator. |
| Independent Practice | 15 | Pair students up: assign the students to pairs, give the pairs a set of equations (at teachers’ discretion), ask one student to describe and sketch by hand the graph of one equation, have the second person check the solution with a graphing calculator. Reverse roles and continue with the next equations. Rotate the roles until all equations are graphed. |
| Closure | 5 | Ticket out the door: Each students will graph an absolute value equations that the teacher writes up on the board for all students. |

Reflection:

A website for a worksheet/or practice problems with “independent practice”: <http://northcobbhs.blogs.com/files/homework.pdf>

**Day 3**

Benchmark:

**9-12.A.2.2** Determine whether a relation defined by a graph, a set of ordered pairs, a table of values, an equation, or a rule is a function

**9-12.A.1.14** Evaluate polynomial, rational, radical, and absolute value expressions for one or more variables

Learning Objective:

Given a graph or an evaluation – students will be able to evaluate or write out the equation from the graph with an 80% accuracy rate

Assessment:

Independent Practice

Accommodations:

Tier 2:

Tier 3:

Materials:

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| --- | --- | --- |
| **Strategy** | **Time** | **Activity** |
| Bell work | 5 | Students will read about absolute value from the website:  <http://en.wikipedia.org/wiki/Absolute_value> |
| Introduction/Engage | 10 | As a class: Solve – a group of mountain climbers decided to hike up to the top of M. Blackwell to camp at Mile High Campsite. How many feet did they travel? The first crest was 2150 feet up but they had to go down a small decline of 125 feet before starting the next segment of 1275 feet. At this point they went on a ledge for 30 feet. Once again they had to go down 200 feet before going up the final 1620 feet. Is the campsite accurately named? |
| Independent practice | 15 | Have students work on more problems dealing with evaluating absolute value expressions. Teacher discretion but there is a website:  <http://northcobbhs.blogs.com/files/homework.pdf> |
| Group sharing | 10 | Have students compare and share their work from the independent practice |
| Closure | 5 | Wrap up: how are your students doing at this point - discuss |

Reflection:

**Day 4**

Benchmark:

**9-12.A.2.2** Determine whether a relation defined by a graph, a set of ordered pairs, a table of values, an equation, or a rule is a function

**9-12.A.1.4** Explain that the distance between two numbers on the number line is the absolute value of their difference.

**9-12.A.1.14** Evaluate polynomial, rational, radical, and absolute value expressions for one or more variables

Learning Objective:

Students will give adequate feed back on absolute value

Assessment:

QUIZ

Accommodations:

Tier 2:

Tier 3:

Materials:

Graphing paper Color pencils

Note card

|  |  |  |
| --- | --- | --- |
| **Strategy** | **Time** | **Activity** |
| Bell work | 5 | Have students watch video on evaluating absolute value (refresher)  <http://www.slideshare.net/rfant/absolute-value-equations-algebra-2> |
| Reinforce | 5 | Check for understanding and see if they have any questions |
| Independent Practice/ QUIZ | 25 | QUIZ |
| Closure | 10 | On a note card: Summarize the past couple of days lesson. On a scale of 1 to 4, how comfortable are you with absolute value? EXPLAIN!   1. no idea 2. need some help 3. got it on my own 4. help others |

Reflection:

**Day 5**

Benchmark:

**9-12.A.1.4** Explain that the distance between two numbers on the number line is the absolute value of their difference.

Learning Objective:

Given a real life scenario – students will be able to find the absolute value (distance) of the particular problem with a n 80 % accuracy rate

Assessment:

The scenarios

Accommodations:

Tier 2:

Tier 3:

Materials:

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| --- | --- | --- |
| **Strategy** | **Time** | **Activity** |
| Bell work | 3 | Have students try and think up a real life scenario that involves absolute value. |
| Introduction/Engage | 12 | Using the CBL’s – have student explore graphs using the “tracer” program or the “hiker” program. |
| Group Practice | 20 | Set up three or four groups and have a different real life scenario at each group. Have each group discuss and solve each scenario. Students should fine an answer and be able to graph their solution and/or scenario.  <http://mathforum.org/library/drmath/view/57177.html> |
| Share | 10 | Have each group get up and present their findings of each scenario. |

Reflection:

For Transformations you can use:

<http://www.wcschools.com/mjhs/tlcf/bestpractices/haines2/Transformations%20of%20Graphs%20of%20Equations.pdf>