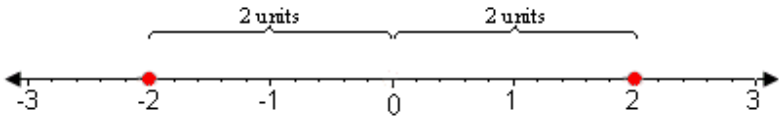
1.2 Integers

Absolute Value: The absolute value of a real number is its distance from 0 on the number line.

The numbers 2 and -2 are both 2 units away from 0.



That is, $|2| = 2$ and $|-2| = 2$.

The absolute value of a real number is never negative!

Examples: $|5| =$ $|-5| =$ $|1.2| =$ $|-2.5| =$ $|0| =$

Operations with integers:

Adding Integers:
- Same signs – add and keep the sign
- Different signs – subtract their absolute values and take the sign of the number with the larger absolute value

Subtracting Integers:
- Change the problem to addition using these rules:

$$a - b = a + (-b)$$
$$a - (-b) = a + b$$
$$-a - b = -a + (-b)$$
$$-a - (-b) = -a + b$$

- Use the rules for adding integers (above)

Examples:

Perform the following operations:

1. 8 + (-3)

2. 6 + (-6)

3. -4 + (-6)

4. 14 – 75 + 17

5. -17 + (-25)

6. 28 + 44

7. 6 – (-10)

8. -7 – 4

9. -8 – (-3)

10. -79 – 114

11. -197 – 216

12. -22 – (-18) + 4

Multiplying and Dividing Integers:

- Multiply or divide "normally"
- If multiplying/dividing two numbers – same signs means positive answer, different signs means negative answer
- For more than two numbers – even number of negative signs means the answer is positive, odd number of negative signs means a negative answer

Examples:

Perform the following operations:

1. -8(2)

2. 15(-8)

3. -12(-10)

4. (-14)(-27)(0)

5. 25(12)

6. 97(-3)

7. 4(-4)(-5)

8. -2(-3)(-4)(-5)

9. -36 ÷ 6

10. -63 ÷ (-9)

11. 0 ÷ 5

12. -72 ÷ 9