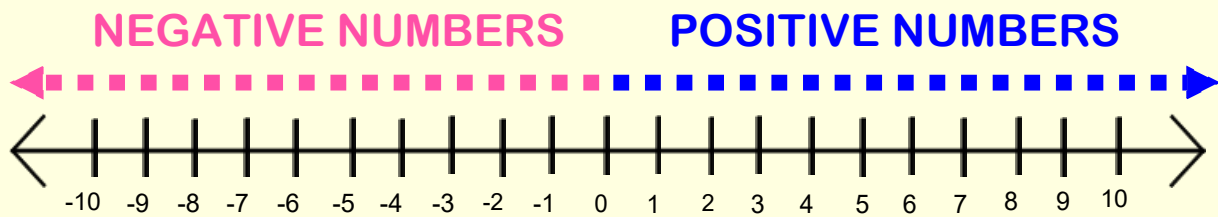
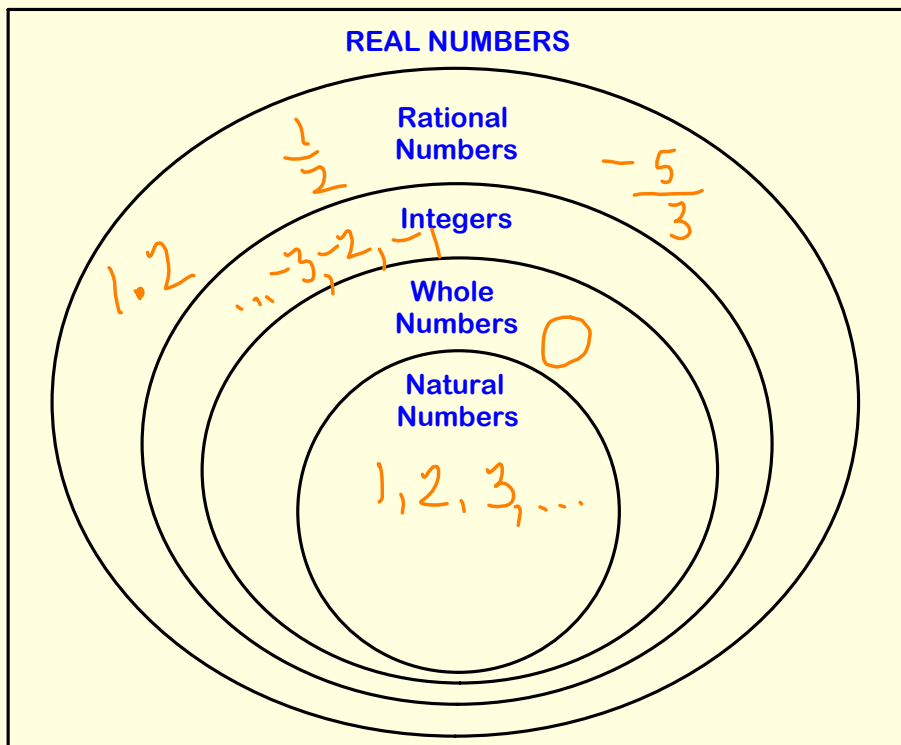


REAL NUMBER LINE



Zero is neither
positive or negative



Natural Numbers

1, 2, 3, ...

Whole Numbers

0, 1, 2, 3, ...

Integers

...-3, -2, -1, 0, 1, 2, 3, ...

Rational Numbers

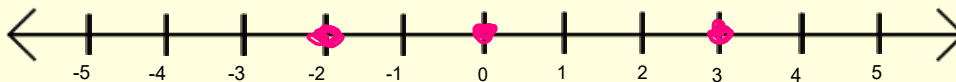
include numbers that
can be written as a
fraction

Real Numbers

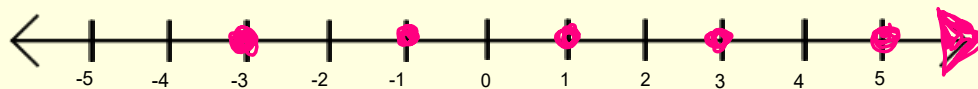
all of the above

EXAMPLES: Graph the following on a number line.

1. -2, 0, 3

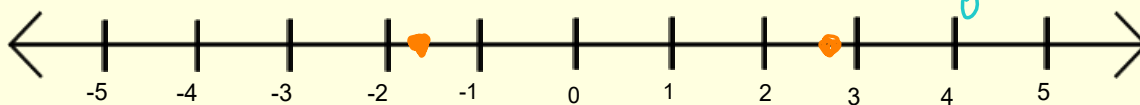


2. -3, -1, 1, 3, 5, ...



Graph on a number line.

3. $-1\frac{3}{4}$ and 2.7



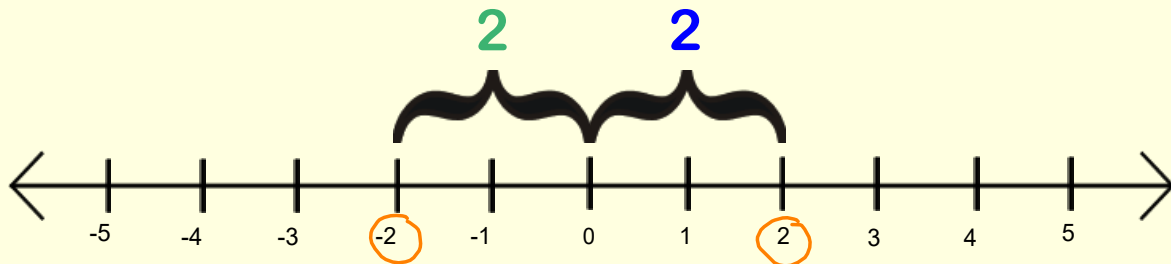
$$\begin{array}{r} 75 \\ 4 \overline{) 3.00} \\ \underline{-28} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

4. -0.3 and $3\frac{4}{5}$



$$\begin{array}{r} 8 \\ 5 \overline{) 4.0} \\ \underline{-40} \\ 0 \end{array}$$

Two numbers that are the same distance away from 0 on a number line but on opposite sides of 0 are opposites.



The numbers +2 and -2 are **opposites** because each is two units away from 0.

What is the opposite of -4?
4

The absolute value of a number is its distance from zero on a number line.

distance is always positive

Evaluate each expression.

7 is how far from 0?
5. $|7|$

7

6. $|-4.6|$

4.6

7. $|\frac{1}{2}|$

$\frac{1}{2}$

grouping symbol
8. $-|2.8|$
-2.8

9. $-|-\frac{3}{2}|$
- $\frac{3}{2}$

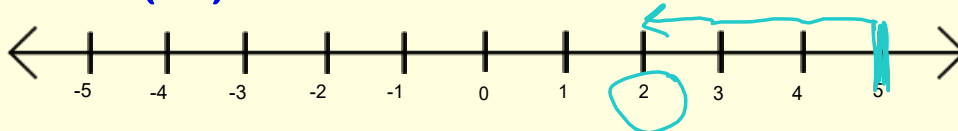
ADDING REAL NUMBERS

EXAMPLES: Use a number line to find the sum.

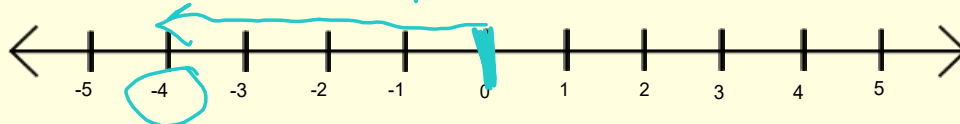
10. $-4 + 2 = -2$



11. $5 + (-3) = 2$



12. $0 + (-4) = -4$



RULES OF ADDITION

To add two numbers with the **same sign**:

1. Add their absolute values.
2. Attach the common sign.

To add two numbers with **opposite signs**:

1. Subtract the smaller absolute value from the larger one.
2. Attach the sign of the number with the larger absolute value.

Add the following.

$$\underline{-4} + \underline{(-5)}$$

Step 1: Add their absolute values. $4 + 5 = 9$

Step 2: Attach common sign. -9

Answer: $-4 + (-5) = -9$

$$\underline{3} + \underline{(-9)}$$

Step 1: Subtract the absolute values. $9 - 3 = 6$

Step 2: Attach sign of the number with larger absolute value. -6

Answer: $3 + (-9) = -6$

$$13. \quad \underline{-3} + \underline{(-7)}$$

$$-10$$

$$15. \quad \underline{-1} + \underline{3} = 2$$

$$\begin{array}{r} 3 \\ -1 \\ \hline 2 \end{array}$$

$$14. \quad \underline{8} + \underline{(-3)} = 5$$

$$\begin{array}{r} 8 \\ -3 \\ \hline 5 \end{array}$$

$$16. \quad 4 - \underline{(-7)} = 11$$

Find the sum.

$$17. \underbrace{9 + (-4)} + 1 = 6$$

$$5 + 1$$

$$20. \underline{-6} + (\underline{-11}) + (\underline{-9}) = -26$$

$$18. \underbrace{4 + (-8)} + (-7) = -11$$

$$-4 + -7$$

$$21. \underbrace{-18 + (-14)} + 20$$

$$\begin{array}{r} -32 \\ + 20 \\ \hline -12 \end{array}$$

$$19. \underbrace{-1.9 + 2.2} + (-1.7)$$

$$\begin{array}{r} 2.2 \\ -1.9 \\ \hline 0.3 \end{array}$$

$$\begin{array}{r} 0.3 \\ + (-1.7) \\ \hline -1.4 \end{array}$$

$$\begin{array}{r} 1.7 \\ -0.3 \\ \hline 1.4 \end{array}$$

$$22. \underbrace{1.5 + 2.1} + (-1.3)$$

$$\begin{array}{r} 3.6 \\ + (-1.3) \\ \hline 2.3 \end{array}$$

Find the sum.

$$23. 24 + (-49) = -25$$

$$\begin{array}{r} 49 \\ -24 \\ \hline 25 \end{array}$$

$$26. -125 + (-230) = -355$$

$$\begin{array}{r} 125 \\ 230 \\ \hline 355 \end{array}$$

$$24. -87 + 101 = 14$$

$$\begin{array}{r} 101 \\ -87 \\ \hline 14 \end{array}$$

$$27. 246 + (-584) = -338$$

$$\begin{array}{r} 584 \\ -246 \\ \hline 338 \end{array}$$

$$25. -41.8 + (-27.4)$$

$$28. -236.3 + 418.7$$