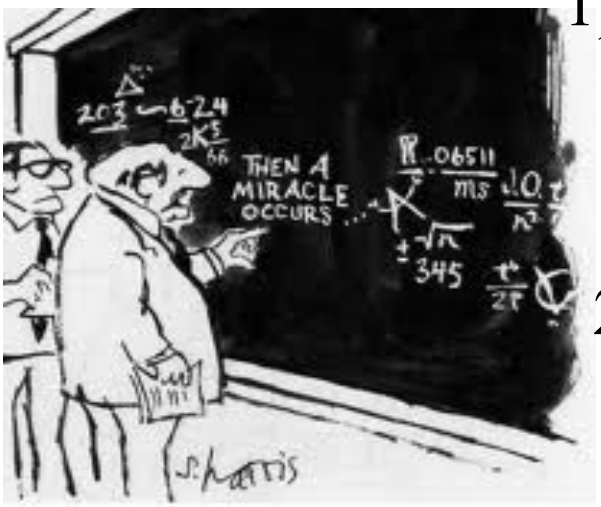
Warm up

Solve Each of The Following In Your Notebooks



nk you should be more explicit here in step two."

from *What's so Funny about Science?* by Sidney Harris (1977)

1) $3 + 7(10-6) - 2 =$

$= 3 + 7(4) - 2$

$= 3 + 28 - 2$

$= 31 - 2$

$= 29$

2) $10 \times 5 + 3(12-3) =$

$= 10 \times 5 + 3(9)$

$= 50 + 27$

$= 77$

BEDMAS

(B)rackets

(E)xponents

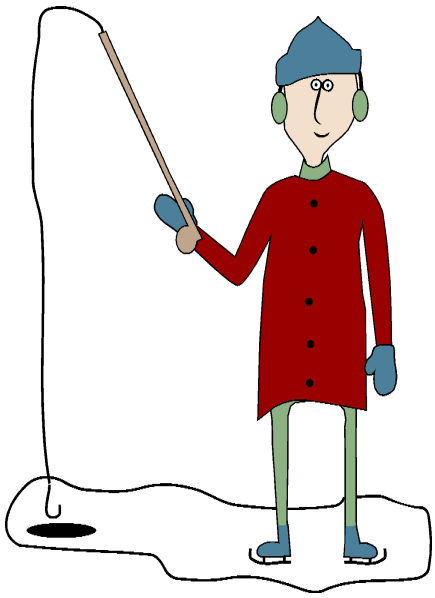
(D)ivision

(M)ultiplication } whichever comes 1st

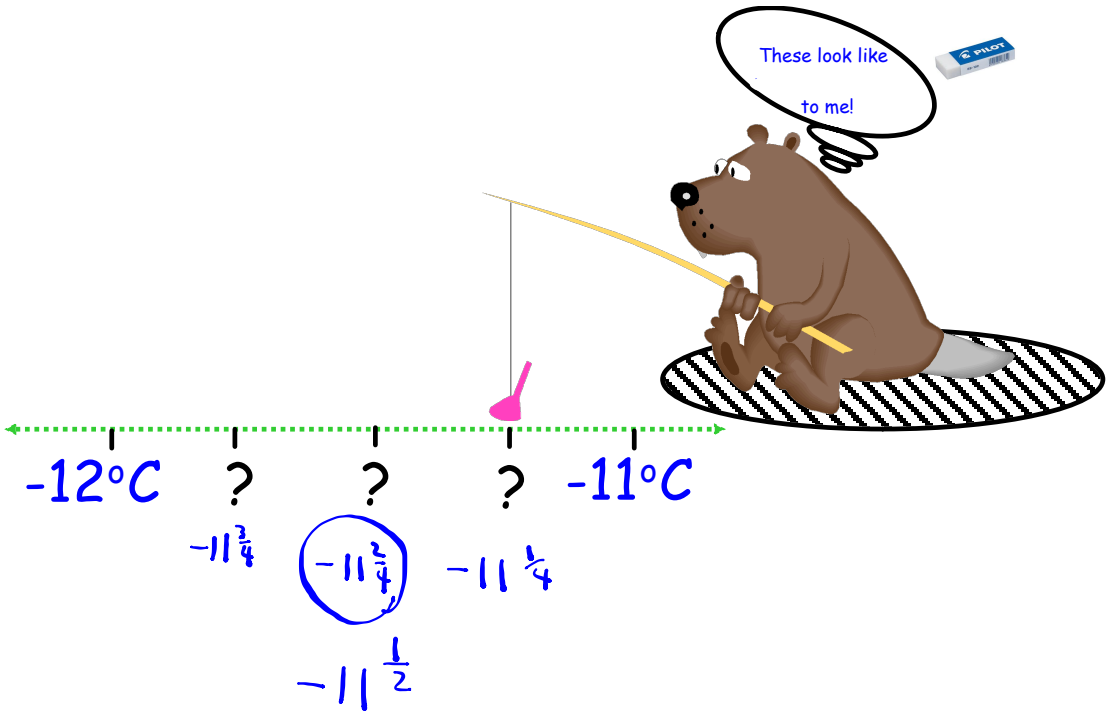
(A)ddition

(S)ubtraction } whichever comes first

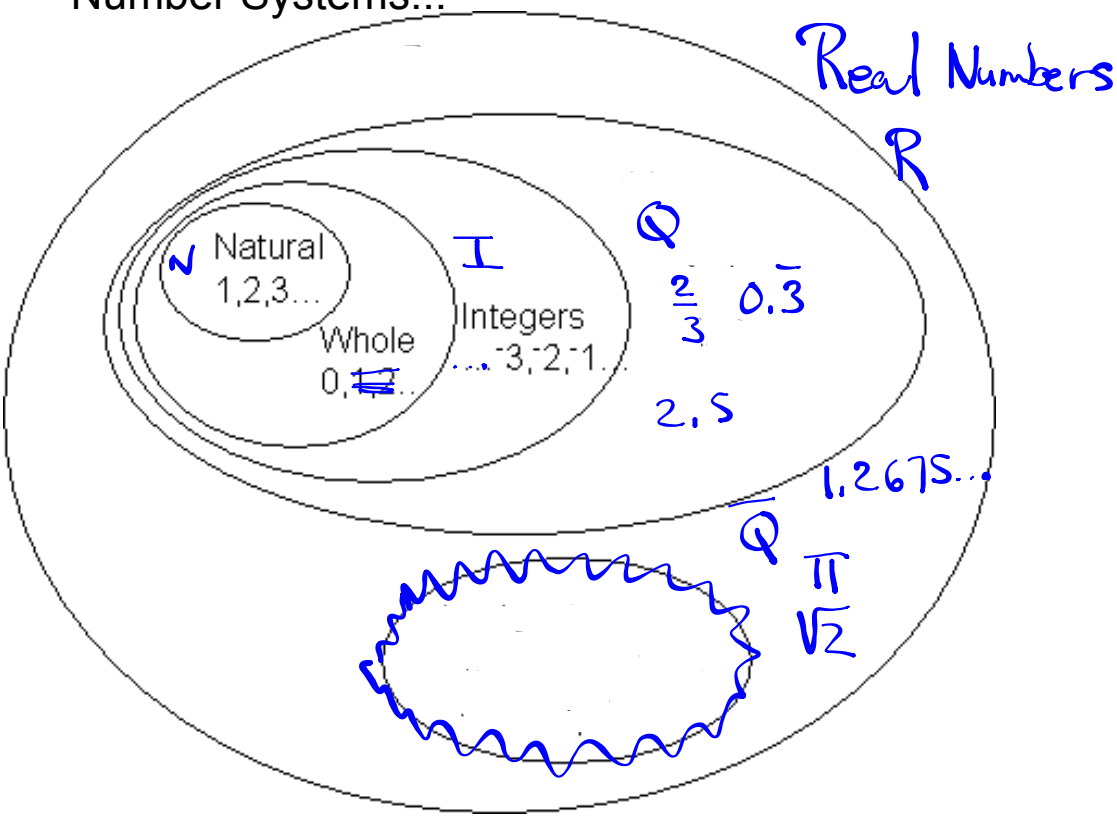
Suppose you are ice fishing on Blachford Lake, NWT. The temperature at midnight is -12°C. At 6 am the next day, the temperature is -11°C. What must the temperature have been at some time during the night?



-11.5 -11.3



Number Systems...



Natural Numbers - (N) $\{1,2,3,4,5...\}$

Whole Numbers - (W) $\{0,1,2,3...\}$

Integers - (I) $\{...-2,-1,0,1,2...\}$

Rational Numbers (Q) Written as a fraction. As a decimal they end or repeat $0.\overline{6}$ 1.5 $\frac{2}{3}$

Irrational Numbers $(\overline{Q})$ Can't be written as a fraction Does not end or repeat π 1.21567... $\sqrt{2}$

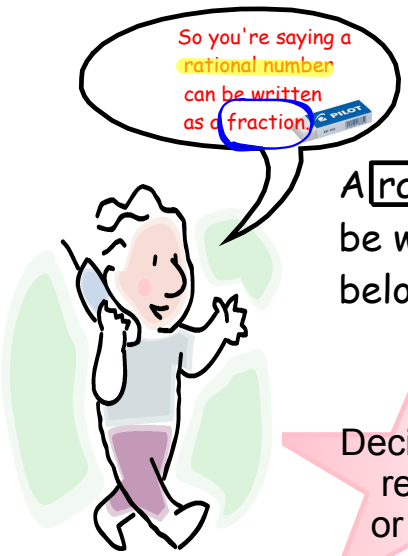
Real Numbers (R) All possible numbers

$\mathbb{Q}$ Rational Numbers

$\bar{\mathbb{Q}}$ Irrational Numbers

Sara $\overline{\text{Sara}}$

8 $\bar{8}$



A rational number is any number that can be written in the form $\frac{a}{b}$ where a and b belong to integers and $b \neq 0$.

Decimal form repeats or ends.

$$Q = \left\{ \frac{a}{b} \mid a,b \in I, b \neq 0 \right\}$$

$\frac{8}{2} = 4$ $\frac{6}{3} = 2$ $\frac{18}{0} = ?$

Changing fractions to decimals...

Express each fraction as a decimal, then sort as a repeating or terminating decimal.

Repeating...		Terminating...
$-0.\overline{5}$	$\frac{-5}{9}$	
$0.\overline{81}$	$\frac{27}{33}$	
	$\frac{20}{-10}$	-2
$0.\overline{2}$	$\frac{6}{27}$	
	$\frac{-8}{5}$	-1.6
	$\frac{18}{12}$	1.5

$6\frac{3}{4}$ -16 12.7 700

$\frac{-8}{9}$ $\frac{4}{5}$ $\sqrt{9}$ 0.1258

Irrational numbers cannot be written as fractions.

Use a calculator to determine the value of each rational number.

$-\frac{7}{5} = -1.4$

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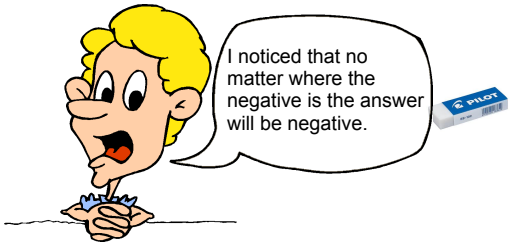
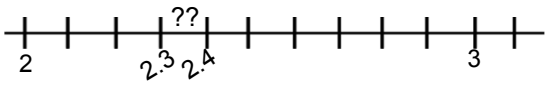
$-\frac{7}{5} = -1.4$

What did you notice??



$-\frac{7}{5}, \rightarrow -\frac{7}{5} \rightarrow -\frac{7}{5}$

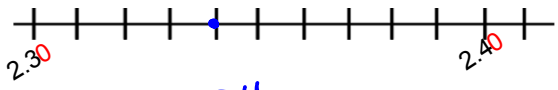
No



Hint... Add a zero place holder at the end of the decimal.

2.30

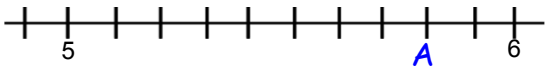
2.40



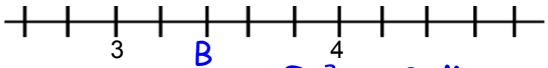
2.34

2.35 and 2.36

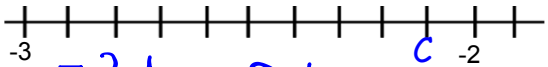
= 2.357



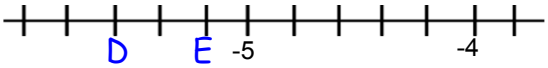
5.8



$3\frac{2}{5}$ 3.4



$-2\frac{1}{10}$ -2.1



E -5.2

D -5.6

I. Change the fractions to decimals.

$\frac{2}{5}$ $\frac{3}{4}$

0.4 0.75

0.69

II. Write the fractions with common denominators.

$\frac{2}{5}$ $\frac{3}{4}$

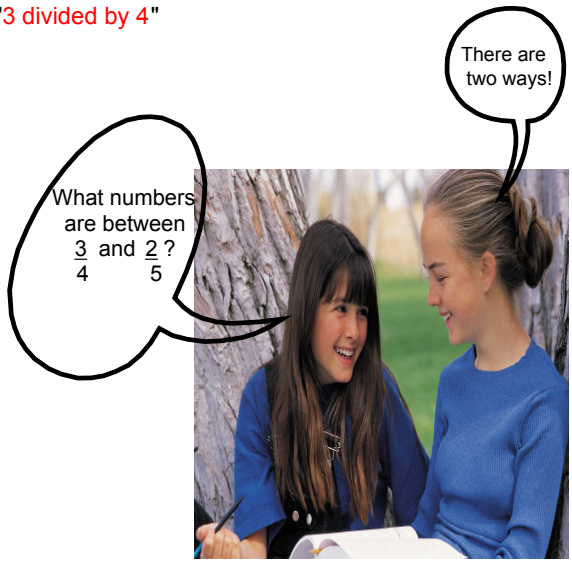
×4 ×5

$\frac{8}{20}$ $\frac{15}{20}$

$\frac{10}{20}$, $\frac{9}{20}$

"2 divided by 5"

"3 divided by 4"



The numerator is LARGER than the denominator.

Improper Fractions vs. Mixed Fractions

$\frac{7}{3}$ This is an Improper Fraction → Integer + Fraction (Mixed Fraction) $2\frac{1}{3}$

$\frac{7}{3} = 2\ldots$ 2 $\frac{1}{3}$

$3 \times 2 = 6$

$7 - 6 = 1$

The numerator is LARGER than the denominator.

Improper vs. Mixed Fractions

$\frac{7}{3}$ → $2\frac{1}{3}$

This is an Improper Fraction

Integer + Fraction Mixed Fraction

$2(3)+1=7$

Arrange the numbers from least to greatest.

$$-\frac{3}{8}, \frac{5}{9}, -\frac{10}{4}, -1\frac{1}{4}, \frac{7}{10}, \frac{8}{3}$$

-0.375 $0.\overline{5}$ -2.5 -1.25 0.7 $2.\overline{6}$

$-\frac{10}{4}$ $-1\frac{1}{4}$ $-\frac{3}{8}$ $\frac{5}{9}$ $\frac{7}{10}$ $\frac{8}{3}$

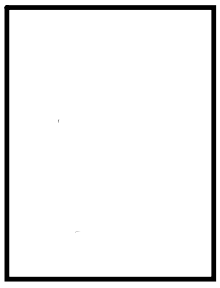
Arrange the numbers from least to greatest.

$$-\frac{3}{8}, \frac{5}{9}, -\frac{10}{4}, -1\frac{1}{4}, \frac{7}{10}, \frac{8}{3}$$

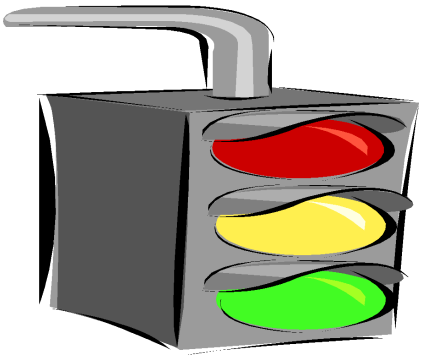
Change the numbers to decimals!

-0.375, 0.555..., -2.5, -1.25, 0.7, 2.666...

Least...



...Greatest



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Questions:
5 - 11, 12 (a,e,h)