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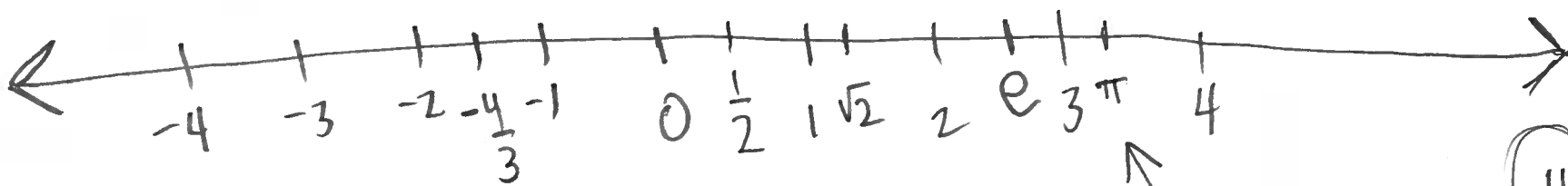
WebWork

Numbers 0, 1, 2, ... (whole numbers, natural numbers)

..., -2, -1, 0, 1, 2, ... (integers)

$-\frac{3}{2} = \frac{-3}{2} = \frac{3}{-2}$ $\frac{1}{2}, -\frac{3}{4}, \frac{18}{3}$ (fractions, "rational numbers")

ALWAYS AVOID: $\frac{\text{anything}}{0}$



Number cult — Pythagoras

"real numbers"

$\frac{4}{3}$
 $1.\overline{333}$

NEVER: ~~$\frac{1}{3}$~~

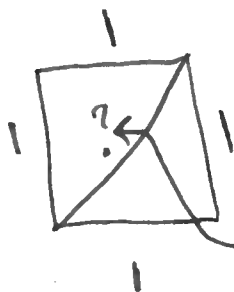
~~$\frac{1}{3}$~~

$5 = 5.000006$

$\frac{1}{3} = 0.\overline{3333}$

$\pi \approx 3.14\dots$

$e \approx 2.7\dots$



what number?

$\sqrt{2}$ — this is not rational number
 ≈ 1.4

Letters

"unspecified" → variables - usually x, y, z
 i, j, k etc
 n, m, l

take "unknown" value — often either we are free to choose a value or we need to find a value (3)

"fixed values" → parameters - Sometimes used represent "fixed value"

Arithmetic in IR

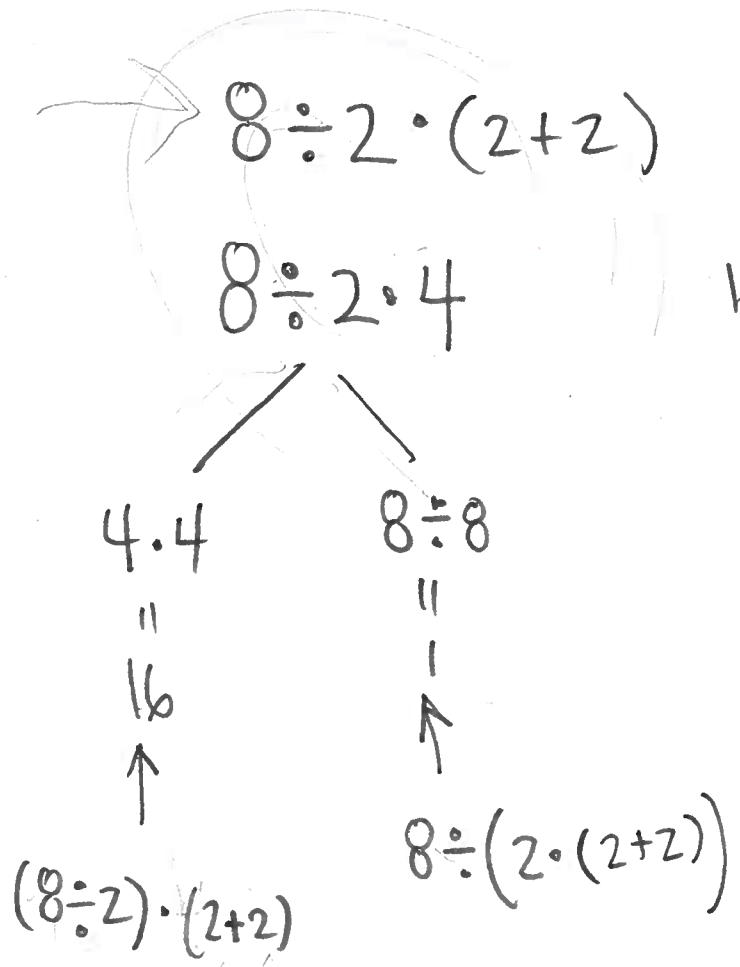
Both addition and multiplication are...

- commutative ~ $a+b = b+a$, $a \cdot b = b \cdot a$

- associative ~ $a+(b+c) = (a+b)+c$

$$a \cdot (b \cdot c) = (a \cdot b) \cdot c$$

5



Parentheses first

Exponents

left-to-right [Mult
Div

left-to-right [Add
Subtr

