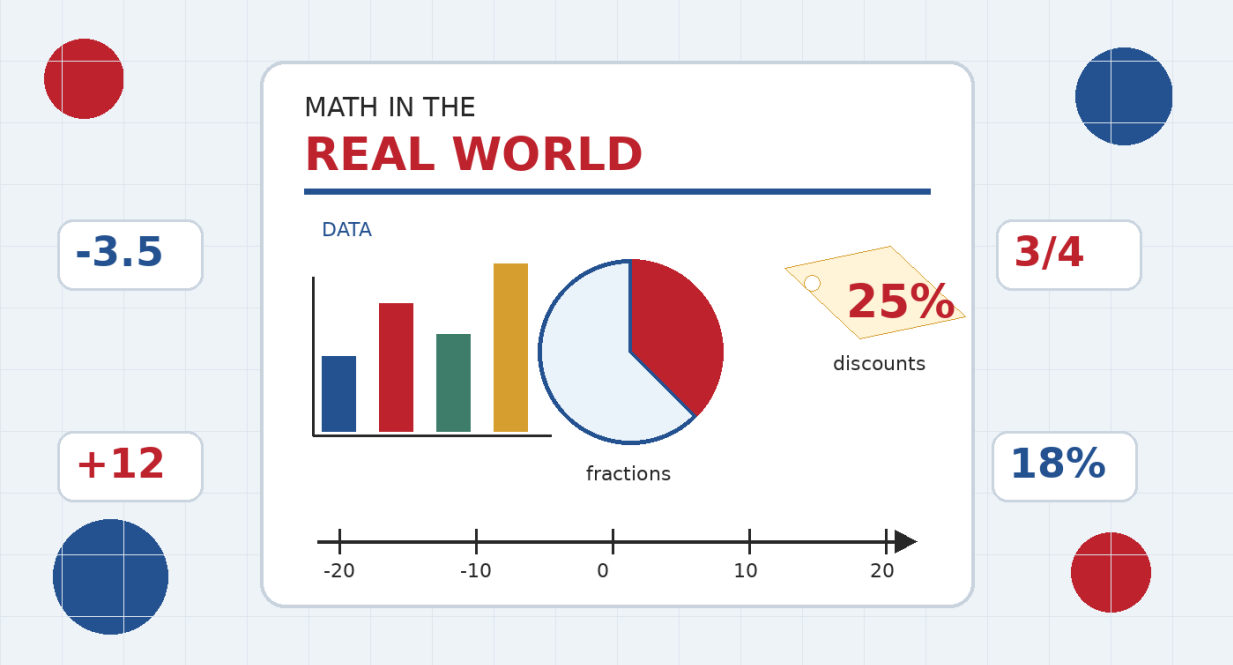
PAN AMERICAN SCHOOL OF BAHIA

GRADE 7 MATHEMATICS • UNIT 2

RATIONAL NUMBERS IN THE REAL WORLD

Numeracy Magazine Project



Think like a math journalist.

Investigate real-life data, create original rational-number problems, and explain why the mathematics matters.

FORMAT	FINAL PRODUCT	TIME	SUBMISSION
Individual project	One 2-page article	4 weeks	Schoology

Name: **Class:** **Due date:**

YOUR CHALLENGE

Project Brief

Rational numbers appear in prices, temperatures, scores, recipes, travel, data, and countless other everyday situations. In this project, you will act as a **math journalist**. You will investigate one real-world context and create one cohesive, two-page magazine article that helps a reader understand both the mathematics and its importance.

ROLE	AUDIENCE	PURPOSE	PRODUCT
Math journalist	Classmates, families, and other students	Explain how rational numbers solve real problems	One polished two-page magazine article

Your two-page magazine article must include:

- **1. A strong headline, byline, and introduction.** Introduce one real-world context, establish the purpose of the article, and give the reader a reason to care.
- **2. Two connected original problems.** Use realistic information or data. The two questions should belong to the same story and require more than one simple calculation.
- **3. Complete mathematical reasoning.** Show each step, use correct notation and units, interpret the results, and write clear answer sentences.
- **4. Meaningful visuals and data.** Include at least two useful visuals, such as a photograph, graph, chart, table, diagram, or number line. At least one visual must communicate data.
- **5. A concept explanation.** Name and explain the operations, rules, rates, averages, percentages, or other ideas used in the article.
- **6. A conclusion, reflection, and sources.** Bring the article to a clear ending, explain why the mathematics matters, and list the sources for information, data, and images.

Mathematics requirements

Use at least two forms of rational numbers: integers, fractions, decimals, or percentages. Include two connected, multi-step problems. At least one problem must involve a meaningful comparison, average, unit rate, percent change, or interpretation of a negative value.

TOPIC MENU

Choose 1 of 6 Themes

Choose one theme for your two-page article. You may propose another real-life context, but it must be approved before you begin.

1

Sports & Competition

Possible data: Scores, averages, win-loss records, player statistics, race times, point differences, performance percentages.

Question starters: *How can two players be compared fairly? What does a negative point differential mean?*

2

Money & Shopping

Possible data: Discounts, markups, taxes, tips, budgets, exchange rates, sale prices, profit and loss.

Question starters: *Is a deal really a bargain? How much does the final cost change after tax?*

3

Food & Nutrition

Possible data: Recipes, serving sizes, ingredient scaling, food costs, calories, fractions of daily intake.

Question starters: *How does a recipe change for a different number of people? What fraction of a daily target does a meal represent?*

4

Travel, Weather & Navigation

Possible data: Temperatures, elevation, distance, time zones, speed, fuel use, baggage limits, currency conversions.

Question starters: *How much does temperature change? Which route or travel option is more efficient?*

5

Media, Music & Gaming

Possible data: Follower growth, ratings, screen time, playlists, game statistics, damage multipliers, in-game currency.

Question starters: *What percent did an audience grow? Which strategy has the better rate of success?*

6

Environment, Design & Building

Possible data: Water use, recycling, emissions, scale drawings, dimensions, material costs, LEGO or model builds.

Question starters: *How can a quantity be reduced? How does changing scale affect measurements and cost?*

Important

Choose a context that gives you useful numbers to analyze. A topic is not automatically mathematical: your questions, calculations, comparisons, and explanations are what make it a strong numeracy article.

PLAN YOUR TWO-PAGE ARTICLE

Article Planner

Use this organizer to plan the full article before you begin designing the final two-page layout.

Theme / context

Working title

Real-world focus

What situation, issue, decision, or comparison will your article investigate?

Data and sources

What facts, prices, measurements, statistics, or other information will you use? Record the source.

Problem 1

Write the question. Identify the rational numbers and operations you expect to use.

Problem 2

Write the question. Make it meaningfully different from Problem 1.

Visual plan

What visual will support your explanation? What will it show?

Reflection idea

Why could this mathematics matter to a real person?

FOUR-WEEK WORKFLOW

Timeline & Checkpoints

Strong projects are developed in stages. Bring evidence of your progress to each checkpoint so that feedback can improve your final work.

WHEN	FOCUS	WHAT YOU WILL DO	EVIDENCE
WEEK 1	**Choose & Research**	Select one theme; obtain topic approval; create your document; locate reliable information, images, and data; record every source.	Article plan + source list
WEEK 2	**Design the Mathematics**	Draft two connected original problems; identify the rational-number forms and concepts used; solve and check all calculations.	Two problem proposals + calculations
WEEK 3	**Write & Visualize**	Write the introduction, transitions, explanations, concept discussion, conclusion, and reflection; create visuals that clarify the mathematics.	Complete two-page first draft
WEEK 4	**Revise & Publish**	Use peer and teacher feedback; improve clarity, accuracy, flow, layout, spelling, labels, and citations; submit the final two-page article on Schoology.	Final PDF / shared file

Final submission checklist

- ☐ I submitted one complete, cohesive two-page magazine article on one approved theme.
- ☐ I included two connected original problems and showed complete, accurate work.
- ☐ I used at least two forms of rational numbers and identified the mathematical concepts involved.
- ☐ I included at least two useful visuals; at least one communicates data with clear labels and units.
- ☐ I explained and interpreted the mathematics instead of only listing calculations.
- ☐ I included a conclusion, thoughtful reflection, and complete list of sources.
- ☐ I checked spelling, formatting, flow, readability, and file access before submitting.

File naming

Save your final file as: Lastname_Firstname_NumeracyMagazine.pdf

NUMERACY MAGAZINE | SPORTS & DATA

THE NUMBERS BEHIND RONALDO

A football legend's career looks different when you read it through averages, rates and percentages.

By Mr. Williams

Ronaldo Nazário's career is remembered through goals, trophies and World Cups. The statistics add another layer.

Ronaldo Nazário's career is usually told through famous moments, but the numbers reveal another story. They show how often he moved, where he stayed longest and how heavily he was involved in goals. **How long did he usually stay at a club, and in which league was he most involved in goals?**

THE FIRST CLUE

A career of short stops and long stays

Ronaldo played for seven clubs during the career shown in the data. Some stays were brief: one season at Cruzeiro, Barcelona and AC Milan. Others lasted much longer, including five seasons at Inter Milan and five at Real Madrid.

Altogether, those club spells add to 17 seasons. Dividing 17 seasons by seven clubs gives the mean length of a stay:

17 ÷ 7 = 17/7 ≈ 2.43 seasons per club

That answer is useful, but it is not the whole story. Ronaldo never actually spent 2.43 seasons at a club. The mean is a single number that balances a data set containing both one-season stops and five-season stays.

Another way to read the same data is with a fraction. Three of the seven club spells lasted only one season, so 3/7 of his stops were one-season stays. As a percentage, that is about 42.9%.

3/7 ≈ 0.429 ≈ 42.9%

THE EVIDENCE

Seven clubs, 17 seasons

Club	Seasons
Cruzeiro	1
PSV	2
Barcelona	1
Inter Milan	5
Real Madrid	5
AC Milan	1
Corinthians	2

The mean of 2.43 sits between the short stops and the two five-season spells. It is useful, but the original data are still needed to see how uneven the career was.

A rate changes the picture

Goals alone are impressive. Goals plus assists per appearance let us compare leagues more fairly.

From goals to goal participation

In La Liga, Ronaldo made 164 appearances, scored 117 goals and recorded 34 assists. Combining the goals and assists gives 151 goal contributions. Dividing by 164 appearances creates a unit rate:

(117 + 34) ÷ 164 = 151/164 ≈ 0.92

The rate 0.92 means Ronaldo averaged about 0.92 goal contributions for every La Liga appearance. It can also be written as 92.1 contributions per 100 appearances.

That is not the same as saying he contributed in 92.1% of matches. A player can have more than one goal or assist in a single match, so this is a rate, not a percentage of games.

The same calculation can be repeated for each league. The resulting rates are 1.00 in the Eredivisie, 0.92 in La Liga, 0.81 in Serie A and 0.77 in Brazil's Série A.

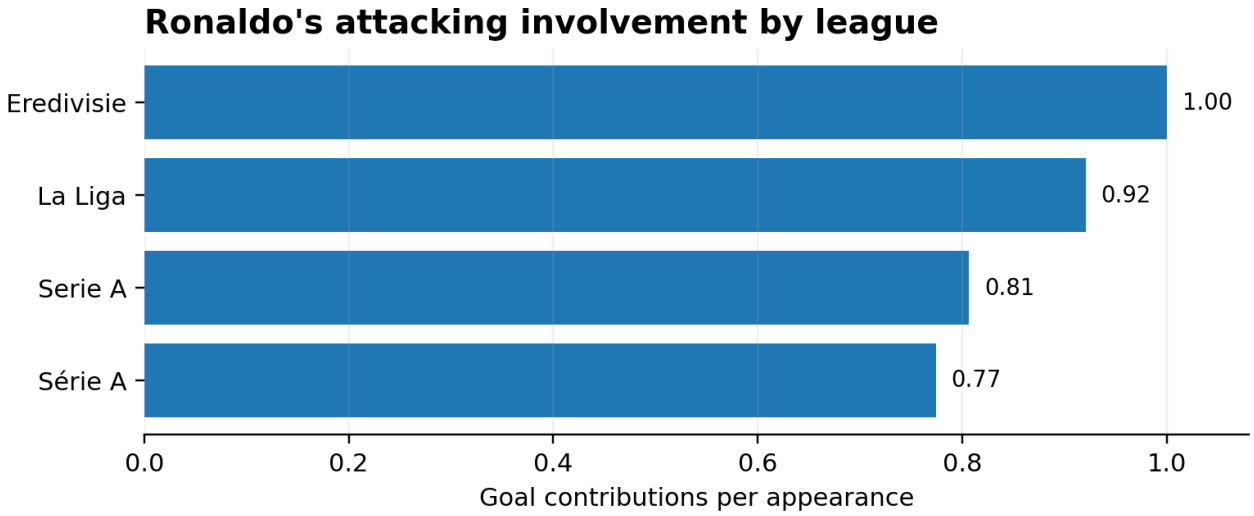
A small difference can become meaningful

At first glance, 1.00 and 0.92 look almost the same. The difference is only 0.08 goal contributions per appearance. But multiplying the difference by 20 matches gives a more understandable comparison:

20 × 0.08 = 1.6

Over 20 appearances, a rate difference of 0.08 is equivalent to about 1.6 extra goal contributions. Scaling a decimal difference helps a reader understand whether it is tiny, noticeable or large.

On the available data, Ronaldo's highest goal-participation rate came in the Eredivisie. His Brazilian Série A rate was the lowest of the four leagues shown.



Goal-participation rate = (goals + assists) ÷ appearances. A rate of 1.00 means one goal contribution per appearance on average.

THE BIGGER QUESTION

Do the numbers prove where Ronaldo was best?

Not completely. The numbers suggest that his attacking involvement was highest in the Netherlands, but league quality, teammates, opponents, age and the number of appearances all changed across his career. Statistics make comparisons possible; they do not erase context.

That is why rational numbers matter beyond the classroom. Fractions, decimals, percentages, averages and unit rates can turn a pile of sports statistics into a story. The strongest conclusion is not simply that one number is bigger than another. It is an explanation of what the difference means - and what the data still cannot tell us.

LEAGUE RATES

The numbers at a glance

League	Rate
Eredivisie	1.00
La Liga	0.92
Serie A	0.81
Série A	0.77

SOURCES
Wikipedia: https://en.wikipedia.org/wiki/Ronaldo_(Brazilian_footballer)
Real Madrid: https://www.realmadrid.com/pt-PT/o-clube/historia/lendas-futebol/ronaldo-luis-nazario-de-lima
Transfermarkt: https://www.transfermarkt.com/ronaldo/profil/spieler/3140
Medium: https://medium.com/@mhassan1641/the-phenomenon-ronaldo-nazario-a-footballing-force-of-nature-f0871bb3a942

FEEDBACK AND SCORE

One-Point Rubric

The centre column describes the expected standard. Feedback may be recorded in the side columns. Each criterion is scored from 1 to 4.

AREAS FOR GROWTH	MEETING EXPECTATIONS	EVIDENCE OF EXCEEDING	SCORE
	Use of Mathematics Both problems are original, connected, relevant, and mathematically correct. Work is complete and includes appropriate rational numbers, operations, units, interpretations, and answer statements.		/4
	Reasoning & Communication Explanations are logical and easy to follow. Mathematical vocabulary, notation, calculations, graphs, tables, and labels are accurate and consistent.		/4
	Real-World Connection & Research The chosen context is meaningful and supported by suitable information, images, and data. Sources are recorded, and the mathematics helps the reader understand a real situation or decision.		/4
	Presentation & Visual Design The two-page article is cohesive, polished, organized, readable, and visually balanced. Visuals are accurate, labelled, and directly support the mathematics.		/4
	Reflection, Process & Engagement Reflections explain why the mathematics matters. The student uses feedback, meets checkpoints, shows sustained effort, and submits complete work on time.		/4

4 - Exceeding	3 - Meeting	2 - Approaching	1 - Beginning
Consistently goes beyond the stated standard.	Meets the stated standard.	Partially meets the standard; revision is needed.	Shows limited evidence of the standard.

TOTAL: _____ / 20