Ratio Classroom Materials

3:9
1:3

About Ratio Classroom Materials

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Ratio Matching
Ratio Matching Worksheet

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About Ratio Classroom Materials

The following materials were developed by Mathematics and EAL teachers to support a collaborative learning style within the classroom.

Finding Ratio (worksheet)

Objectives	Solve simple problems involving ratio and proportion.
Level	3
Description	This activity provides practice for students in understanding ratio in the context of shaded and unshaded cubes. It also provides an opportunity to re-inforce the convention for writing ratio.
Additional notes	The use of shaded and unshaded multilink cubes is essential for weaker students.

Ratio Matching (worksheet)

Objectives	Solve simple problems involving ratio and equivalent ratios.
Level	5
Description	This activity provides practice for students in understanding equivalent ratio in the context of shaded and unshaded cubes.
Additional notes	The use of shaded and unshaded multilink cubes will help weaker students to see the equivalent ratios.

Ratio 4-in-a-line Game

Objectives	Solve simple problems involving ratio and to encourage students to recognise the language associated with ratio and equivalent ratios in the context of a game.
Level	3-5
Description	A 3-in-a-line Game for 4 students split into two teams. Before a shape can be covered the team must say aloud the ratio written on the card.
Additional notes	The board needs to be enlarged and photocopied on to A3 card. Each team requires 20 counters in one colour. Teachers should photocopy and cut out the appropriate cards for students. The 'equal parts' cards are for the weakest students, though it would be good to mix them with the 'ratio easy' cards.

Pocket Money (worksheets)

Objectives   Solve simple problems involving ratio.

Level   6

Description   An easier problem solving activity than Saturday Jobs.
                    Students sort out the information from the clues in order to
                    answer the two questions.

Additional notes   The Pocket Money Clues should be cut out and placed in an
                    envelope.

Saturday Jobs (worksheets)

Objectives   Solve simple problems involving ratio.

Level   7

Description   A more complex activity than Pocket Money. Students sort out the
                    information from the clues in order to answer the three questions.

Additional notes   The Pocket Money Clues should be cut out and placed in an
                    envelope.

Posters

Objectives   Solve simple problems involving ratio.

Description   Five posters to stimulate classroom discussion.

Additional notes   Each poster needs to be enlarged to A3.

Finding Ratios

Ratio is used to compare two or more quantities.

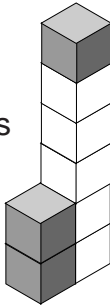---

Example
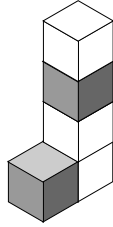
This solid has **5** cubes.

The ratio of shaded cubes to unshaded cubes is **2 : 3**

Write down the ratio of shaded cubes to unshaded cubes in the following solids.

This solid has ☐ cubes.
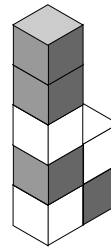
The ratio of shaded cubes to unshaded cubes is ☐ : ☐

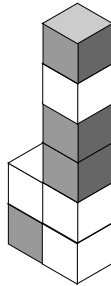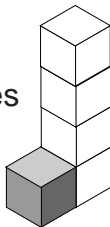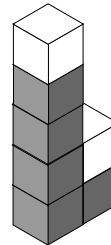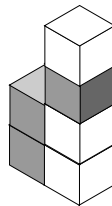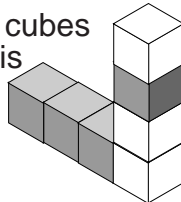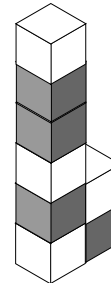This solid has ☐ cubes.

The ratio of shaded cubes to unshaded cubes is ☐ : ☐

This solid has ☐ cubes.
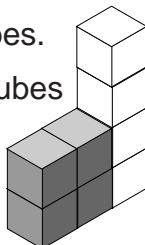
The ratio of shaded cubes to unshaded cubes is ☐ : ☐

This solid has ☐ cubes.

The ratio of shaded cubes to unshaded cubes is ☐ : ☐

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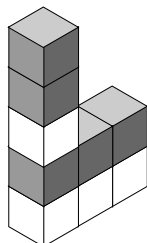The ratio of shaded cubes to unshaded cubes is ☐ : ☐

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The ratio of shaded cubes to unshaded cubes is ☐ : ☐

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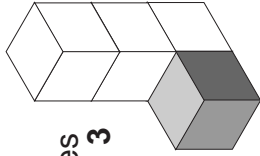The ratio of shaded cubes to unshaded cubes is ☐ : ☐

Ratio Matching

1. Write down the ratio of shaded cubes to unshaded cubes for each of the 12 solids.

2. Make four groups of three solids by matching equivalent ratios.

5

4

8

10

3

9

7

2

12

1

6

11

The four equivalent groups are

——— , ——— and ———

——— , ——— and ———

——— , ——— and ———

——— , ——— and ———

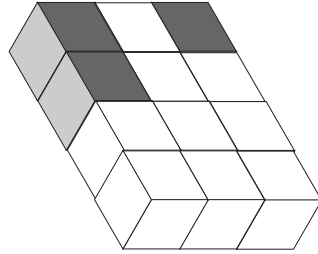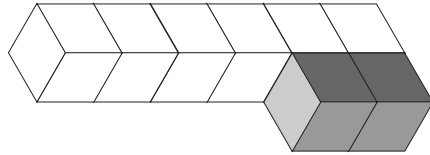Draw a circle around the ratio written in its simplest form.

Example

These three solids are made from shaded cubes and unshaded cubes.

The ratio of shaded cubes to unshaded cubes is **1 : 3**

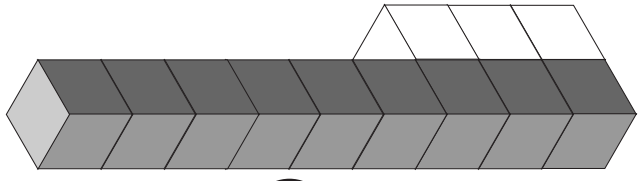The ratio of shaded cubes to unshaded cubes is **2 : 6**

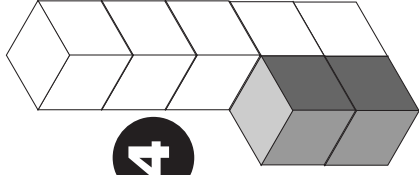The ratio of shaded cubes to unshaded cubes is **3 : 9**

$$\left.\begin{array}{l} 3:9 \\ 2:6 \\ 1:3. \end{array}\right\}$$ are equivalent ratios
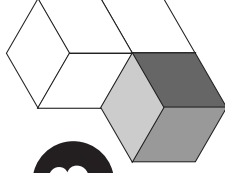
The ratio **1 : 3** is in the simplest form.

For every shaded cube there are **three** unshaded cubes.

Ratio 4-in-a-line Game
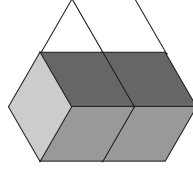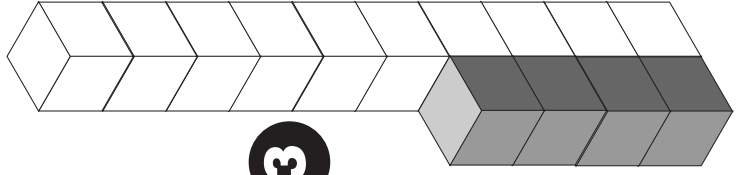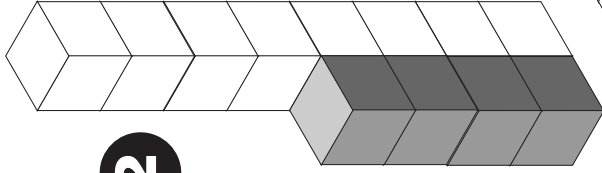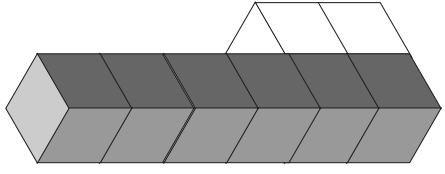
A game for 4 students split into two teams.
You will need 20 counter of the same colour for each team and a set of **Ratio 4-in-a-line** cards.

Rules:

- Each team chooses a colour. Shuffle the cards and place them face down on the table.

- Each team takes it in turn to turn over a **Ratio 4-in-a-line** card. Say the ratio out aloud.
  Then use a counter to cover up a shape on the board which matches the ratio on the card.

- The winning team is the first to make a ine of four, either vertically, horizontally or diagonally.
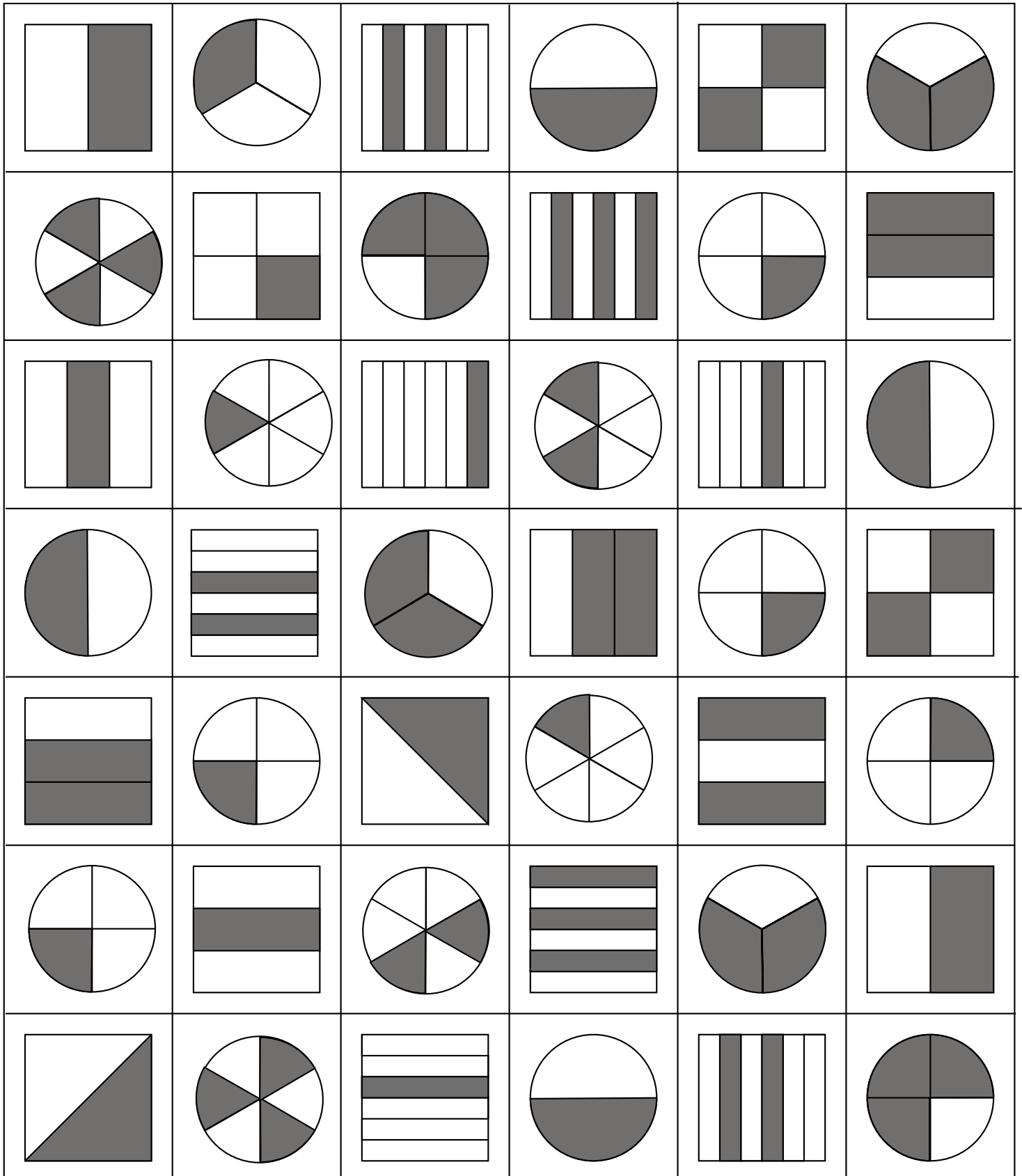
Ratio 4-in-a-line Cards

(ratio hard)

Ratio shaded : unshaded	**Ratio** shaded : unshaded	**Ratio** shaded : unshaded
2 : 2	**5 : 10**	**3 : 15**
8 : 4	**9 : 3**	**2 : 6**
2 : 10	**2 : 4**	**6 : 6**

Ratio 4-in-a-line Cards   (ratio easy)

Ratio shaded : unshaded	Ratio shaded : unshaded	Ratio shaded : unshaded
1 : 1	2 : 4	1 : 5
Ratio shaded : unshaded	Ratio shaded : unshaded	Ratio shaded : unshaded
2 : 1	3 : 1	1 : 3
Ratio shaded : unshaded	Ratio shaded : unshaded	Ratio shaded : unshaded
2 : 2	1 : 2	3 : 3

Ratio 4-in-a-line Cards (equal parts)

Number of equal parts	Number of equal parts	Number of equal parts
3	**6**	**3**

Number of equal parts	Number of equal parts	Number of equal parts
4	**2**	**4**

Number of equal parts	Number of equal parts	Number of equal parts
3	**6**	**2**

Pocket Money

An activity for 2 people.
You will need a copy of *Pocket Money Clues*

In this activity you will be sorting out information to find:
- the names of six students
- how much they each receive for pocket money each week
- the age of each student …

1. Cut out the 16 clues from *Pocket Money Clues*.

2. Sort the information to help you answer the following questions.

    - Who receives the same pocket money as their age?

    - Who is the youngest?

The following table might help you organise the information.

	Names of students					
Age						
Pocket money						

In this activity you will:

- consolidate understanding of the relationship between ratio and proportion;
- reduce a ratio to its simplest form
- divide a quantity into two or more marts in a given ratio
- interpret and use ratio in a range of contexts, including solving word problems

Pocket Money Clues

The sum of Roxanne and Andy's pocket money is £16

The ratio of Roxanne's pocket money to Andy's pocket money is 3 : 5

The ratio of Jo's pocket money to Roxanne's pocket money is 1 : 2

The sum of Fran's, Tom and Jo's ages is 32 years.

The sum of all the ages of the six is 55 years.

The ratio of Fran, Tom and Jo's ages is 4 : 3 : 1

The ratio of Andy's age to Roxannes are is 2 : 1

The sum of Andy's and Roxanne's age is 15 years.

The ratio of Fran's pocket money to Jo's pocket money is 5 : 1

The sum of Fran and Jo's pocket money is £18.

The ratio of Tom's pocket money to Jo's pocket money is 3 : 1

The sum of Tom and Bob's pocket money is £21.

The ratio of Bob's pocket money to Roxanne's pocket money is 2 : 1.

The sum of all their pocket money is £55.

The ratio of Jo's age to Andy's age is 2 : 5.

The ratio of Bob's age to Tom's age is 2 : 3.

Saturday Jobs

An activity for 2 people.
You will need a copy of Saturday Job Clues

In this activity you will be sorting out information to find:
- the names of four students
- what job they do on a Saturday
- what they earn per hour
- how long they work …

1. Cut out the 16 clues from Saturday Job Clues.

2. Sort the information to help you answer the following questions.

   - Who saves the most money?

   - Who works the longest?

   - What is the ratio of the total amounts earned by the four students. Write this ratio in its simplest form.

The following table might help you organise the information.

	Names of students			
Rate of pay per hour				
Hours worked				
Total amount earned				
Job				
Amount saved				
Amount spent				
Ratio of amount spent to amount saved				

In this activity you will:

- consolidate understanding of the relationship between ratio and proportion;
- reduce a ratio to its simplest form
- divide a quantity into two or more parts in a given ratio
- interpret and use ratio in a range of contexts, including solving word problems

Saturday Job Clues

|	
Brendon spends as much as Dailey earns in total.	Alma, the newspaper assembler, saves £4.
The ratio of total amount earned by Dailey to total amount earned by Brendon is 1 : 2	The ratio of Catrin's rate per hour to Brendon's is 3 : 2.
The hairdresser's assistant earns £18 in total .	The ratio of total amount earned by Catrin total amount earned by Alma is 1 : 1.
The cashier in a supermarket works for 4 hours.	Dailey earns half as much per hour as Catrin.
The ratio of hours worked by Brendon, Dailey and Alma is 3 : 2 : 1	Catrin spends twice as much as she saves.
Dailey saves half as much as Alma's total earnings.	There are four Y11 students, Alma, Brendon, Catrin and Dailey.
The fast food assistant earns £4 per hour.	Catrin earns £24 for 4 hours work.
Alma earns twice as much per hour as Brendon.	The ratio of the amount spent to amount saved in Alma's total earnings is 5 : 1.

Ratio Poster

Ratio is used to compare two or more quantities.
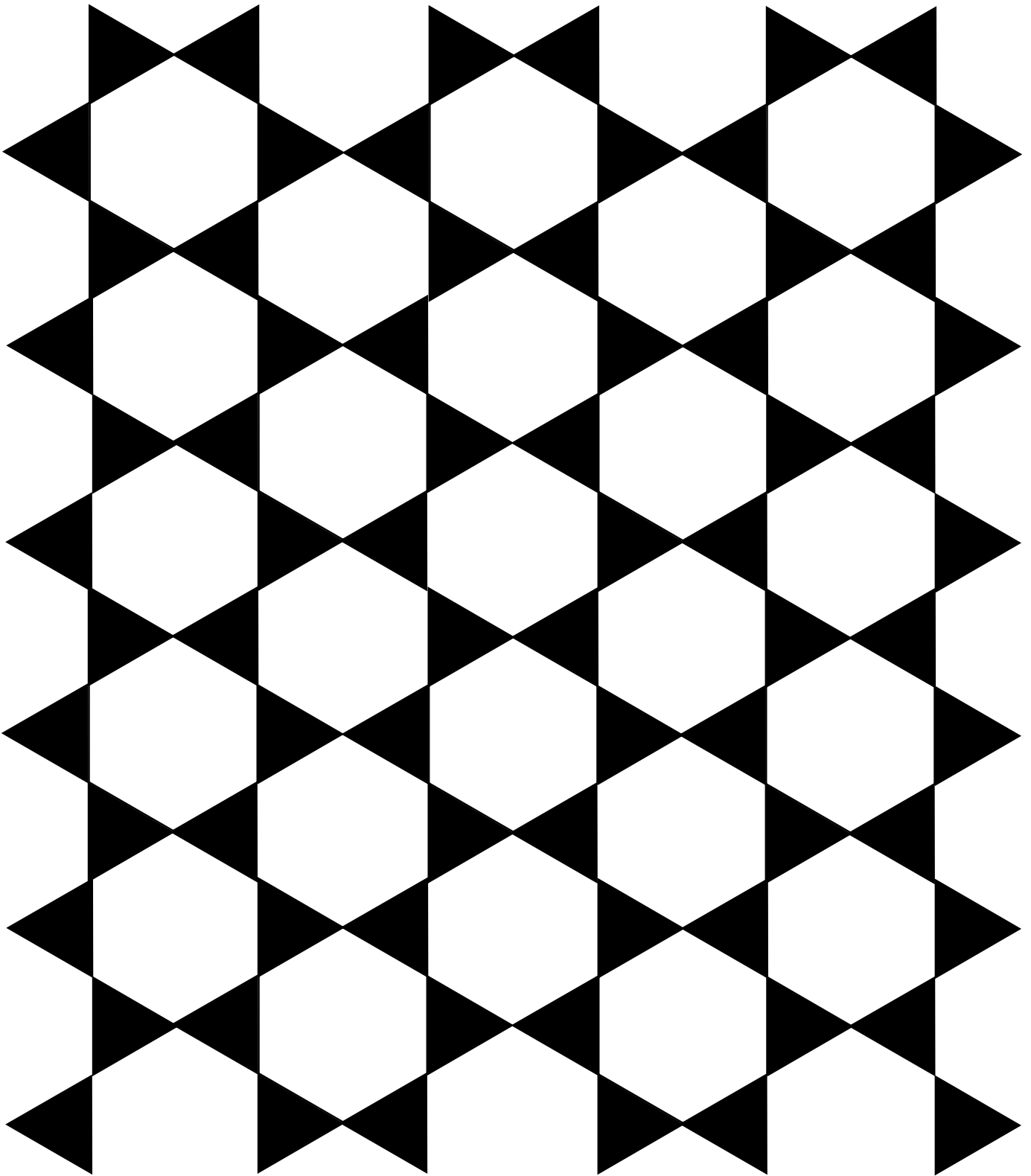
What is the ratio of shaded equilateral triangles to unshaded regular hexagons?
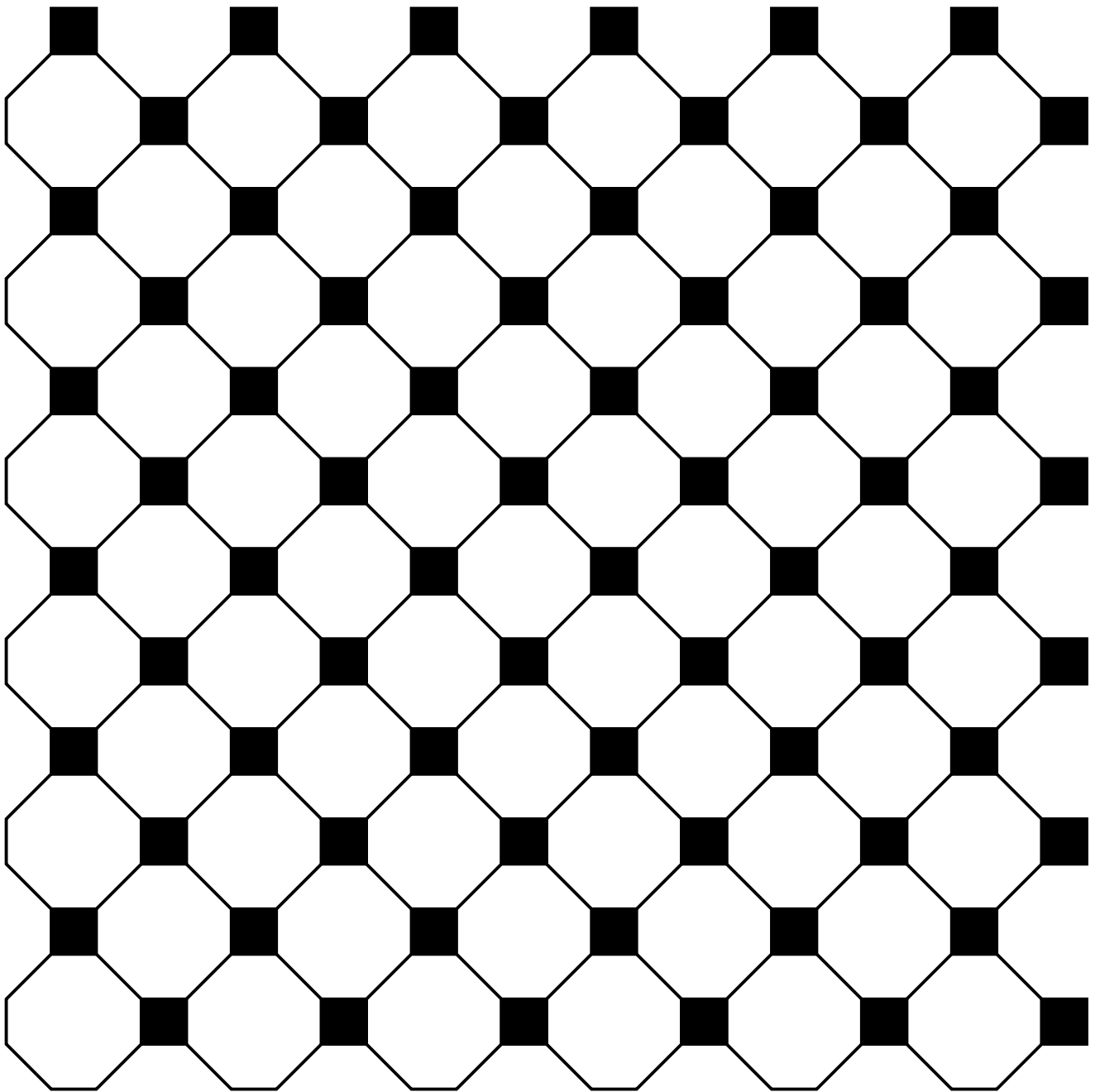
Ratio Poster

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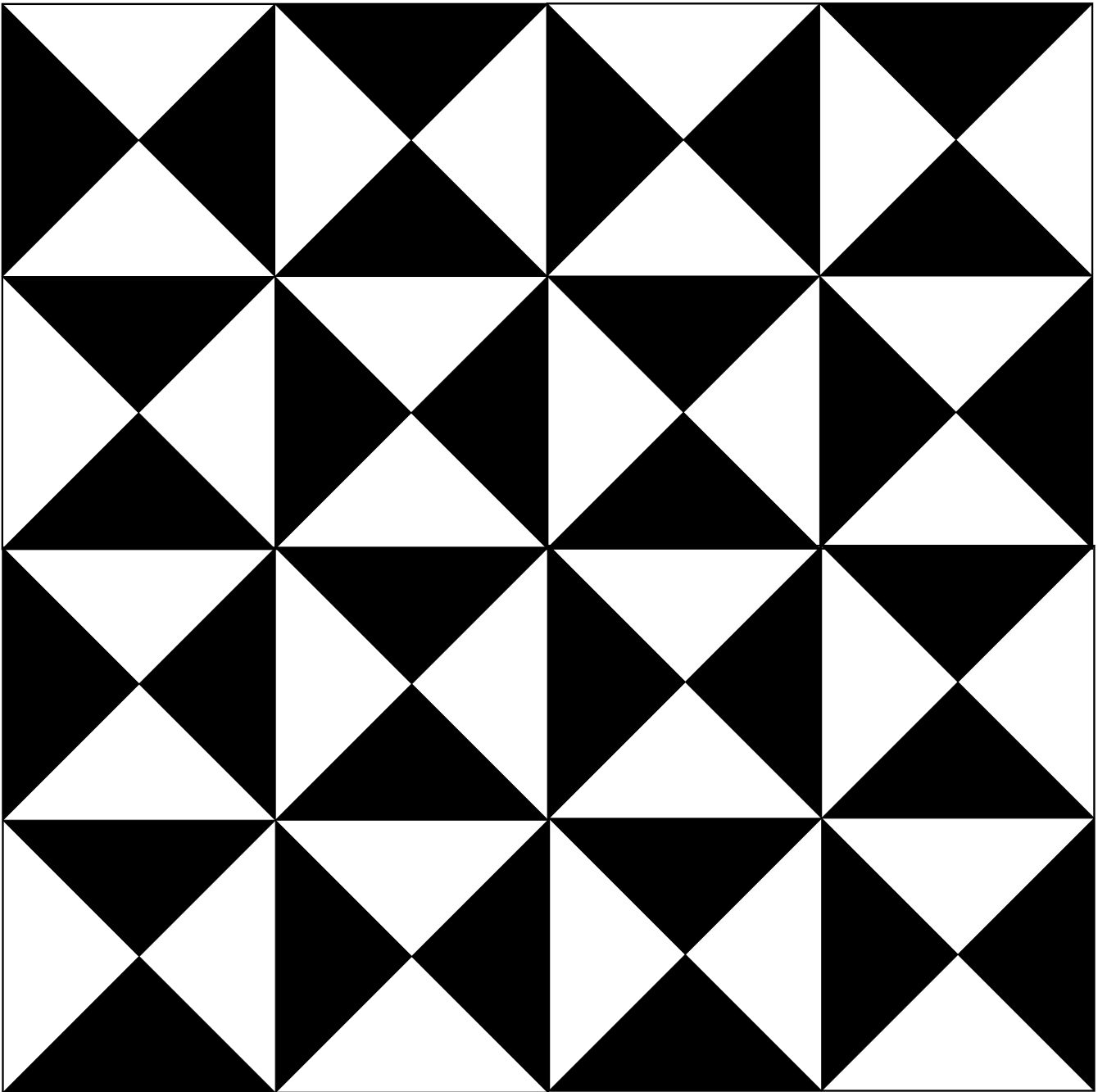
What is the ratio of shaded triangles to unshaded triangles?
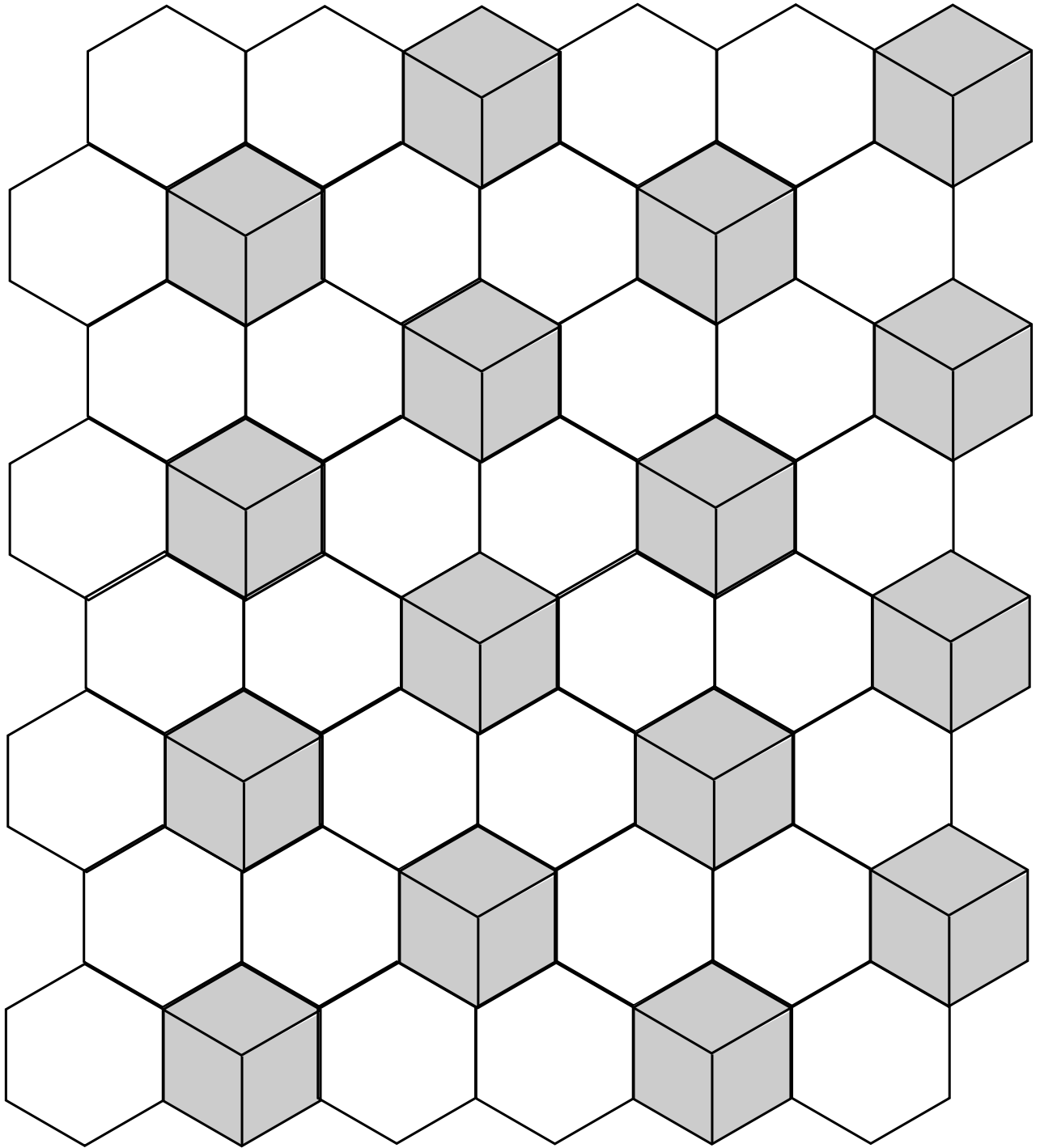
Ratio Poster

Ratio is used to compare two or more quantities.

What is the ratio of shaded squares to unshaded octagons?
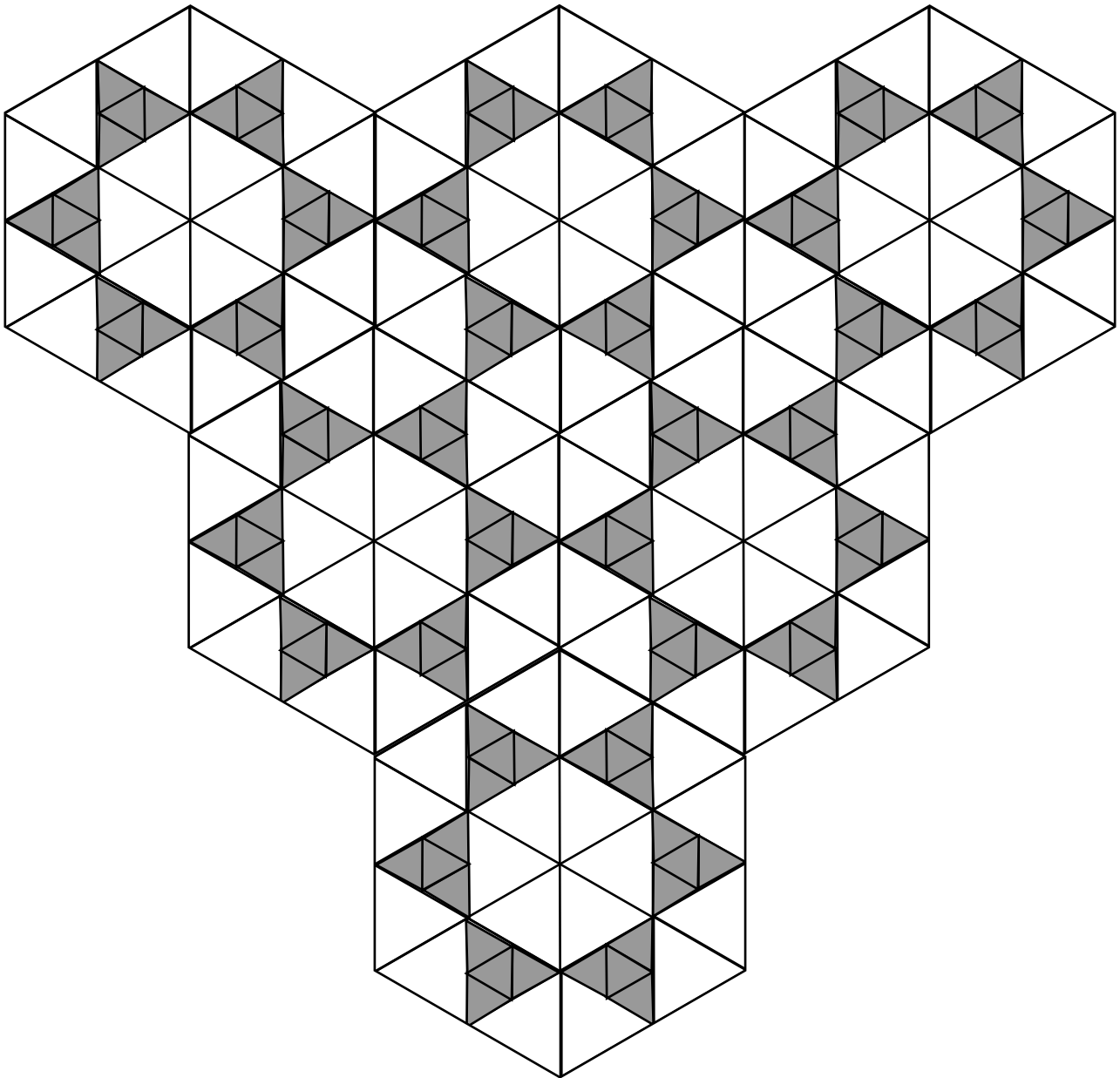
Ratio Poster

Ratio is used to compare two or more quantities.

What is the ratio of shaded rhombuses to unshaded hexagons?

Ratio Poster

Ratio is used to compare two or more quantities.

What is the ratio of shaded triangles to unshaded triangles?