Edison Global Academy – RH

Year 7

TERM 2 – 2025/26

End of Term 2

Math Exam Resource Pack

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Study Material Practice Sheet 3: RATIO & PROPORTION and Statistics

RATIO

Writing Ratio

*Write the ratio correctly

- With a colon: a:b
- As a fraction: $\frac{a}{b}$
- In words: "a to b"

*Use the same units

Always convert quantities to the same unit before comparing.

Example: 2 m: 50 cm → convert 2 m = 200 cm → ratio = 200:50.

*Simplify like a fraction

- Divide both terms of the ratio by their greatest common factor (GCF).
- Example: 200:50 → divide both by 50 → 4:1.

*Order matters

- The order of terms must match the order in the question.
- Example: Boys to Girls = 12:8 → simplify → 3:2.
- Don't flip unless asked for Girls to Boys.

*Check for simplest form

- After simplifying, ensure no further common factor exists.
- Example: 18:24 → divide by 6 → 3:4 (simplest form).

Examples:

1. Write these ratios in their simplest form
   a. 40 mins: 1 hour **(Use the same units: 60 mins = 1 hour)**
   40: 60 mins (divide both side by 20)
   2: 3

b. 36: 18 (divide both side by 18)

36÷18: 18 ÷ 18

2:1

2. A classroom has 10 desks and 15 chairs. What is the ratio of desks to chairs?

10 ÷ 5: 15 ÷ 5

2:3

A. Simplifying Ratios

1. Write 100: 20 in its simplest form

2. Simplify 30 minutes: 2 hours

3. A coin is made of copper, nickel and zinc in the ratio 70 : 5: 25. Write this ratio in its simplest form.

4. Simplify fully:

a) 150 : 30 = _____ b) 18 : 12 = _____ c) 45 minutes : 3 hours = _____

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Equivalent Ratio

To find an equivalent ratio, multiply or divide both terms of the ratio by the same number.

Examples:

1. Solve $\frac{2}{3} = \frac{\quad}{9}$

   $\frac{2 \times 3}{3 \times 3} = \frac{6}{9}$ (both term of the ratio was multiplied by 3)

2. A recipe uses sugar and flour in the ratio of 3:5. If 20 cups of flour are used, how much sugar is needed?

   sugar : Flour $\frac{3 \times 4}{5 \times 4} = \frac{y}{20}$

   y = 3x 4 = 12

3. Find the missing value 4:5 = 24: y

4. Which of these ratios is not equivalent to the ratio 1 : 2?

   a 2 : 4

   b 8 : 12

   c 6 : 12

   d 5 : 10

5. **Which ratio is NOT equivalent to 1 : 2? (Draw a circle around the correct answer)**

   2 : 4 6 : 12 8 : 12 10 : 20 [2]

6. **Match the ratios with their simplified forms:**

24:36	**2:3**
8:28	**1:2**
4:10	**2:7**
15:30	**2:5**

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Sharing in a given Ratio

To share a quantity in a given ratio: Add the parts of the ratio. Divide the whole amount by the total parts to get the value of one part. Multiply each part of the ratio by the value of one part.

Examples:

1. Two friends share 20 riyals in the ratio 1:4. How much does each get?
   1:4 =1 +4 =5 **(Add the parts of the ratio)**

   20 ÷ 5= 4 **(Divide the whole amount by the total parts to get the value of one part)**
   (Multiply each part of the ratio by the value of one part)
   First friend: 1 x 4 = 4
   Second friend: 4 x 4= 16

2. Ali and Fatima share money in the ratio 3:4. If the total amount is 560 QAR, how much does each receive?
   Ratio: 3 + 4= 7 **(Add the parts of the ratio)**
   560 ÷ 7 = 80 **(Divide the whole amount by the total parts to get the value of one part)**
   Ali :3 x 80 = 240**(Multiply each part of the ratio by the value of one part)**
   Fatima: 4 x 80 = 320

Now do these:

1. Share 45 riyals between Ahmed and Fatima in the ratio 4:5.

2. A class has 15 boys and 12 girls.
   (a)How many students are there?

   (b) Write the ratio of boys to girls and simplify your answer.

PROPORTION

Direct Proportion

Two quantities are in direct proportion if as one increases, the other increases at the same rate (or decreases at the same rate).

In direct proportion, set up the ratio, cross-multiply, and solve for the unknown.

Examples

1.If 3 kg of apples cost 24 QAR, how much will 5 kg cost?

3kg = 24 QAR(**set up the ratio, cross-multiply)**

5kg y

$y = \frac{24 \times 5}{3} = 8 \times 5 = 40$

2. A family uses 150 litres of water in 3 days. How much will they use in 10 days?

150litres = 3 days

y = 10 days

$Y = \frac{150 \times 10}{3} = 1500 \div 3 = 500$

3. If 1 pen cost $10.How much will 12 pens cost?

Cost of 1 pen = $10. (**Find the value of one unit: 1 Pen)**

Cost of 12 pens = $10× 12 = $120 (**Scale up to the required units)**

Now do these:

1. A bus travels 120 km in 2 hours. How far will it travel in 5 hours at the same speed?

2. Two litres of lemonade costs £2.50. Work out the cost of 4 litres.

3.One ticket cost $360. Work out how much 5 tickets cost.

MULTIPLE CHOICE QUESTIONS

1. Simplify 18 : 24

A) 3 : 4
B) 6 : 8
C) 9 : 12
D) 12 : 16

2. Share 40 in the ratio 1 : 3. The larger share is:

A) 10
B) 20
C) 30
D) 40

3. If 3 books cost 15 QAR, how much do 7 books cost?

A) 30 QAR
B) 35 QAR
C) 40 QAR
D) 45 QAR

4. Which ratio is equivalent to 2 : 5?

A) 4 : 10
B) 6 : 12
C) 8 : 15
D) 10 : 20

5. If 10 workers finish a task in 6 days, how long will 20 workers take?

A) 12 days
B) 6 days
C) 3 days
D) 9 days

TRUE or FALSE (Explain your choice). Write T or F and explain.

1. The ratio 12 : 18 simplifies to 2 : 3
   ☐ True ☐ False

2. If you multiply both parts of a ratio by 2, the ratio changes its value
   ☐ True ☐ False

3. In direct proportion, when one value increases, the other also increases
   ☐ True ☐ False

4. Sharing 60 in the ratio 1 : 2 gives shares of 20 and 40
   ☐ True ☐ False

5. In inverse proportion, more workers mean more time is needed
   ☐ True ☐ False

Reasoning Challenges

1. A recipe uses sugar and flour in the ratio 2 : 5.
   If 20 cups of flour are used, how much sugar is needed?

2. The ratio of boys to girls is 3 : 4. There are 28 students in total.
   How many boys are there?

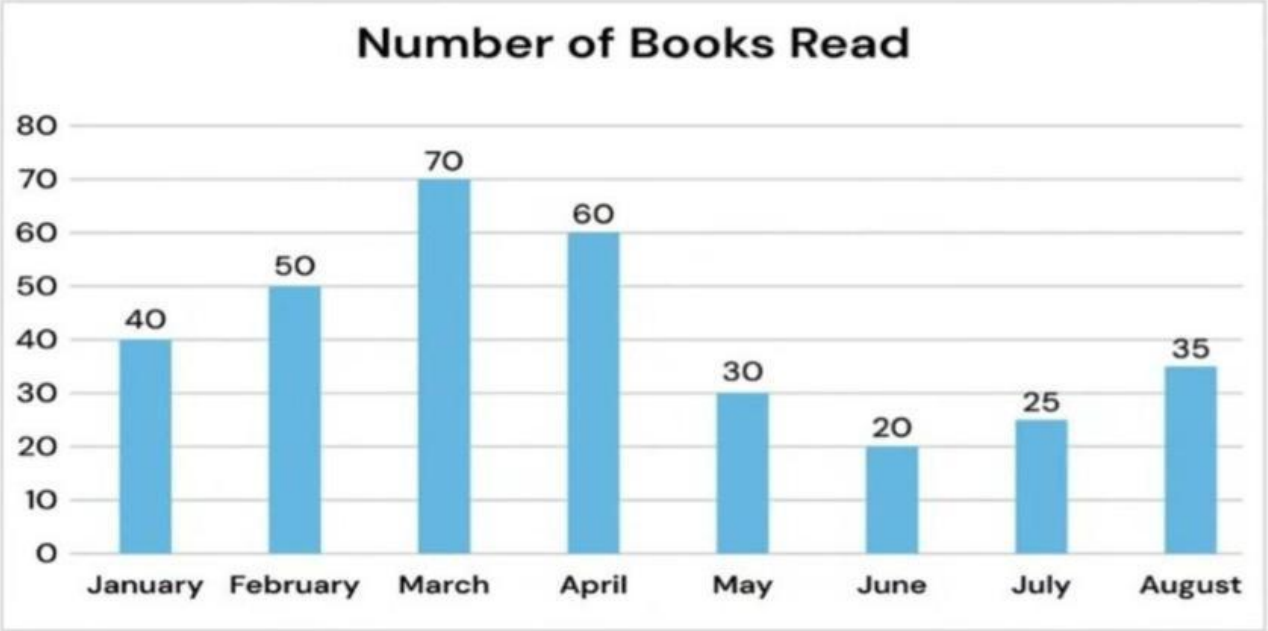
3. 8 workers take 15 days to complete a project.
   How long will 4 workers take?

Statistics – Reading & Interpreting a Bar Chart

Key Statistics Rules (Student Reminder)

✓ Total = add all bars
✓ Mean = total ÷ number of months
✓ Highest bar = greatest value
✓ Lowest bar = smallest value

Question 2: The bar graph shows the number of books read by students in different months. Write an analytical paragraph describing the trend in 150 – 200 words.



Basic Reading Skills

1. How many books were read in February? _____
2. Which month had the highest number of books read? _____
3. Which month had the lowest number of books read? _____

Calculations

4. Find the total number of books read over the five months.

5. Find the mean (average) number of books read per month.

Comparison & Reasoning

6. How many more books were read in April than in March?

7. In which two months was the number of books read closest in value?

   _____

True or False

8. The student read more books in May than in February.

   ☐ True ☐ False

9. The total number of books read in January and March is equal to the number read in April.

   ☐ True ☐ False

Challenge Question

In June, the student read 2 more books than the mean.

a) Find the mean again. _____

b) How many books were read in June? _____