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Improper Fractions Yr5

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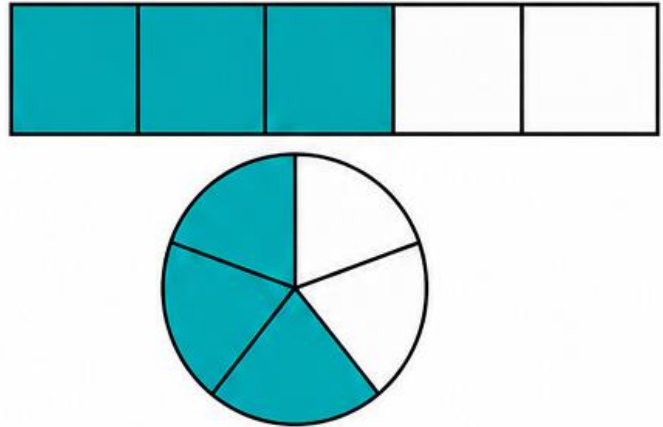


FRACTIONS GREATER THAN ONE

PROPER FRACTION

The numerator is smaller than the denominator.

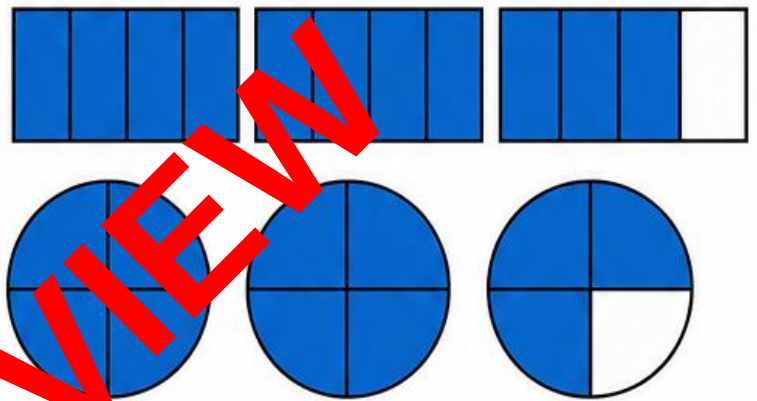
$\frac{3}{5}$ is less than one whole.



IMPROPER FRACTION

The numerator is equal to or greater than the denominator.

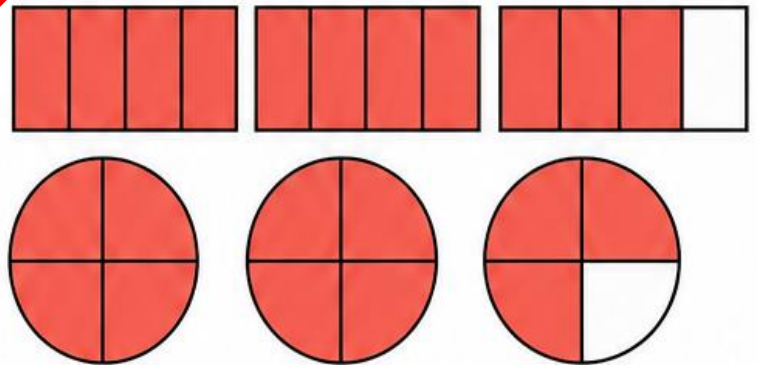
$\frac{11}{4}$ is greater than one whole.



MIXED NUMERAL

A whole number and a proper fraction.

$2 \frac{3}{4}$



CONVERT IMPROPER TO MIXED

Divide the numerator by the denominator.

$$11 \div 4 = 2 \text{ remainder } 3$$

$$11/4 = 2 \frac{3}{4}$$

CONVERT MIXED TO IMPROPER

Multiply the whole number by the denominator, then add the numerator.

$$3 \times 5 + 2 = 17$$

$$3 \frac{2}{5} = 17/5$$



FRACTION FORM

SORT & EXPLAIN

$$\frac{3}{4}$$

$$1\frac{1}{2}$$

Sort each card into the correct section. Then choose three cards and explain how you know.

PROPER FRACTIONS

Numerator < denominator

IMPROPER FRACTIONS

Numerator $\geq$ denominator

MIXED NUMERALS

Whole number + proper fraction

PREVIEW

JUSTIFY YOUR THINKING

Card: _____ I know because: _____

Card: _____ I know because: _____

Card: _____ I know because: _____

FRACTION FORM SORT CARDS

$\frac{3}{5}$

$\frac{7}{8}$

$\frac{11}{6}$

$\frac{9}{4}$

$\frac{12}{3}$

$3\frac{1}{5}$

$\frac{5}{9}$

$\frac{14}{7}$

$\frac{8}{3}$

$2\frac{3}{4}$

$\frac{7}{10}$

$\frac{13}{5}$

$4\frac{1}{6}$

$\frac{6}{11}$

$\frac{17}{8}$

$5\frac{2}{9}$

$\frac{10}{3}$

$\frac{2}{7}$

IMPROPER FRACTION MATCH-UP



$7/3$

$2 \frac{1}{3}$

$11/4$

$2 \frac{3}{4}$

$14/5$

$2 \frac{4}{5}$

$17/6$

$2 \frac{5}{6}$

$19/4$

$4 \frac{3}{4}$

$22/7$

$3 \frac{1}{7}$

$13/3$

$4 \frac{1}{3}$

$26/5$

$5 \frac{1}{5}$

$31/6$

$5 \frac{1}{6}$

$29/8$

$3 \frac{5}{8}$

$18/7$

$2 \frac{4}{7}$

$25/4$

$6 \frac{1}{4}$

PREVIEW

IMPROPER FRACTION MATCH-UP

2-4 PLAYERS

YOU NEED



Cut-apart
match-up
cards and a
pencil.

HOW TO PLAY

- 1 Shuffle the cards and place them face down.
- 2 Take turns turning over two cards.
- 3 Keep the cards if they show equivalent forms.
- 4 Explain the conversion to earn the pair.
- 5 The player with the most pairs wins.

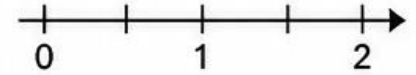
RECORD SIX MATCHES

Improper fraction	Mixed numeral	How I checked

MY STRATEGY

One useful way to check equivalent forms is: _____

FRACTION FORMS IN CONTEXT



Name: _____

Date: _____

A. Classify each value as proper, improper or mixed.

1. $\frac{4}{9}$ _____	2. $\frac{9}{5}$ _____	3. $2\frac{1}{4}$ _____
4. $\frac{7}{7}$ _____	5. $\frac{13}{6}$ _____	6. $\frac{3}{8}$ _____
7. $5\frac{2}{3}$ _____	8. $\frac{16}{5}$ _____	9. $\frac{11}{12}$ _____
10. $4\frac{3}{10}$ _____	11. $\frac{21}{7}$ _____	12. $\frac{8}{3}$ _____

B. How do the numerator and denominator help you identify the fraction form?

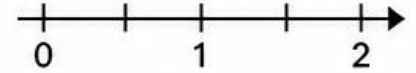
C. Write one example of each form.

Proper: _____

Improper: _____

Mixed: _____

FRACTION FORMS IN CONTEXT



Name: ANSWERS

Date: _____

A. Classify each value as proper, improper or mixed.

1. $\frac{4}{9}$ <u>proper</u>	2. $\frac{9}{5}$ <u>improper</u>	3. $2\frac{1}{4}$ <u>mixed</u>
4. $\frac{7}{7}$ <u>improper</u>	5. $\frac{13}{6}$ <u>improper</u>	6. $\frac{3}{8}$ <u>proper</u>
7. $5\frac{2}{3}$ <u>mixed</u>	8. $\frac{16}{5}$ <u>improper</u>	9. $\frac{11}{12}$ <u>proper</u>
10. $4\frac{3}{10}$ <u>mixed</u>	11. $\frac{21}{7}$ <u>improper</u>	12. $\frac{8}{3}$ <u>improper</u>

B. How do the numerator and denominator help you identify the fraction form?

A proper fraction has a numerator smaller than its denominator. An
improper fraction has a numerator equal to or greater than its
denominator. A mixed numeral has a whole number and a proper fraction.

C. Write one example of each form.

Proper: $\frac{3}{8}$

Improper: $\frac{11}{4}$

Mixed: $2\frac{1}{5}$

CONVERTING IMPROPER FRACTIONS TO MIXED NUMERALS

SUPPORT - PAGE 1

Name: _____

Date: _____

Worked example

$$11 \div 4 = 2 \text{ remainder } 3$$

$$\frac{11}{4} = 2 \frac{3}{4}$$

$$\begin{array}{r} 2 \\ 4 \overline{) 11} \\ \underline{- 8} \\ 3 \end{array}$$

Divide the numerator by the denominator. The quotient is the whole number. The remainder is the new numerator.

Convert each improper fraction to a mixed numeral.

1. $\frac{7}{3}$

$$\begin{array}{r} \\ 3 \overline{) } \\ \underline{- } \end{array}$$

7. $\frac{25}{8}$

$$\begin{array}{r} \\ 8 \overline{) } \\ \underline{- } \end{array}$$

2. $\frac{9}{4}$

$$\begin{array}{r} \\ 4 \overline{) } \\ \underline{- } \end{array}$$

8. $\frac{14}{3}$

$$\begin{array}{r} \\ 3 \overline{) } \\ \underline{- } \end{array}$$

3. $\frac{13}{5}$

$$\begin{array}{r} \\ 5 \overline{) } \\ \underline{- } \end{array}$$

9. $\frac{16}{7}$

$$\begin{array}{r} \\ 7 \overline{) } \\ \underline{- } \end{array}$$

4. $\frac{17}{6}$

$$\begin{array}{r} \\ 6 \overline{) } \\ \underline{- } \end{array}$$

10. $\frac{23}{6}$

$$\begin{array}{r} \\ 6 \overline{) } \\ \underline{- } \end{array}$$

5. $\frac{19}{7}$

$$\begin{array}{r} \\ 7 \overline{) } \\ \underline{- } \end{array}$$

11. $\frac{28}{9}$

$$\begin{array}{r} \\ 9 \overline{) } \\ \underline{- } \end{array}$$

6. $\frac{22}{5}$

$$\begin{array}{r} \\ 5 \overline{) } \\ \underline{- } \end{array}$$

12. $\frac{31}{10}$

$$\begin{array}{r} \\ 10 \overline{) } \\ \underline{- } \end{array}$$

CONVERTING IMPROPER FRACTIONS TO MIXED NUMERALS

SUPPORT - PAGE 1

Name: **ANSWERS**

Date: _____

Worked example

$$11 \div 4 = 2 \text{ remainder } 3$$

$$\frac{11}{4} = 2 \frac{3}{4}$$

$$\begin{array}{r} 2 \\ 4 \overline{) 11} \\ \underline{- 8} \\ 3 \end{array}$$

Divide the numerator by the denominator. The quotient is the whole number. The remainder is the new numerator.

Convert each improper fraction to a mixed numeral.

1. $\frac{7}{3}$

$$\begin{array}{r} 2 \frac{1}{3} \\ 3 \overline{) 7} \\ \underline{- 6} \\ 1 \end{array}$$

7. $\frac{25}{8}$

$$\begin{array}{r} 3 \frac{1}{8} \\ 8 \overline{) 25} \\ \underline{- 24} \\ 1 \end{array}$$

2. $\frac{9}{4}$

$$\begin{array}{r} 2 \frac{1}{4} \\ 4 \overline{) 9} \\ \underline{- 8} \\ 1 \end{array}$$

8. $\frac{14}{3}$

$$\begin{array}{r} 4 \frac{2}{3} \\ 3 \overline{) 14} \\ \underline{- 12} \\ 2 \end{array}$$

3. $\frac{13}{5}$

$$\begin{array}{r} 2 \frac{3}{5} \\ 5 \overline{) 13} \\ \underline{- 10} \\ 3 \end{array}$$

9. $\frac{16}{7}$

$$\begin{array}{r} 2 \frac{2}{7} \\ 7 \overline{) 16} \\ \underline{- 14} \\ 2 \end{array}$$

4. $\frac{17}{6}$

$$\begin{array}{r} 2 \frac{5}{6} \\ 6 \overline{) 17} \\ \underline{- 12} \\ 5 \end{array}$$

10. $\frac{23}{6}$

$$\begin{array}{r} 3 \frac{5}{6} \\ 6 \overline{) 23} \\ \underline{- 18} \\ 5 \end{array}$$

5. $\frac{19}{7}$

$$\begin{array}{r} 2 \frac{5}{7} \\ 7 \overline{) 19} \\ \underline{- 14} \\ 5 \end{array}$$

11. $\frac{28}{9}$

$$\begin{array}{r} 3 \frac{1}{9} \\ 9 \overline{) 28} \\ \underline{- 27} \\ 1 \end{array}$$

6. $\frac{22}{5}$

$$\begin{array}{r} 4 \frac{2}{5} \\ 5 \overline{) 22} \\ \underline{- 20} \\ 2 \end{array}$$

12. $\frac{31}{10}$

$$\begin{array}{r} 3 \frac{1}{10} \\ 10 \overline{) 31} \\ \underline{- 30} \\ 1 \end{array}$$

CONVERTING IMPROPER FRACTIONS TO MIXED NUMERALS

CORE - PAGE 2

Name: _____

Date: _____

Convert each improper fraction to a mixed numeral. Simplify the fractional part when needed.

1. $32/7$

2. $37/8$

3. $41/6$

4. $46/9$

5. $53/10$

6. $27/4$

7. $35/6$

8. $43/5$

9. $50/12$

10. $57/8$

11. $62/9$

12. $71/10$

13. $38/7$

14. $45/11$

REASONING

Why should $27/6$ be simplified after conversion? Show the complete conversion.

CONVERTING IMPROPER FRACTIONS TO MIXED NUMERALS

CORE - PAGE 2

Name: **ANSWERS**

Date: _____

Convert each improper fraction to a mixed numeral. Simplify the fractional part when needed.

1. $32/7$ **$4\ 4/7$**

2. $37/8$ **$4\ 5/8$**

3. $41/6$ **$6\ 5/6$**

4. $46/9$ **$5\ 1/9$**

5. $53/10$ **$5\ 3/10$**

6. $27/4$ **$7\ 1/4$**

7. $35/6$ **$5\ 5/6$**

8. $43/5$ **$8\ 3/5$**

9. $50/12$ **$4\ 1/6$**

10. $57/8$ **$7\ 1/8$**

11. $62/9$ **$6\ 8/9$**

12. $71/10$ **$7\ 1/10$**

13. $38/7$ **$5\ 3/7$**

14. $45/11$ **$4\ 1/11$**

REASONING

Why should $27/6$ be simplified after conversion? Show the complete conversion.

$27/6 = 4\ 3/6 = 4\ 1/2$. Simplifying gives the fraction in simplest form.

CONVERTING MIXED NUMERALS TO IMPROPER FRACTIONS

SUPPORT - PAGE 1

Name: _____

Date: _____

Worked example

$$3 \frac{2}{5} = \frac{(3 \times 5 + 2)}{5} = \frac{17}{5}$$

Multiply the whole number by the denominator, then add the numerator. Keep the denominator the same.

Convert each mixed numeral to an improper fraction

1. $1 \frac{1}{3}$ _____

2. $2 \frac{3}{4}$ _____

3. $3 \frac{2}{5}$ _____

4. $4 \frac{1}{6}$ _____

5. $2 \frac{5}{8}$ _____

6. $5 \frac{2}{7}$ _____

7. $6 \frac{1}{4}$ _____

8. $3 \frac{4}{9}$ _____

9. $7 \frac{3}{5}$ _____

10. $4 \frac{5}{6}$ _____

11. $2 \frac{7}{10}$ _____

12. $8 \frac{1}{3}$ _____

CONVERTING MIXED NUMERALS TO IMPROPER FRACTIONS

SUPPORT - PAGE 1

Name: **ANSWERS**

Date: _____

Worked example

$$3 \frac{2}{5} = \frac{(3 \times 5 + 2)}{5} = \frac{17}{5}$$

Multiply the whole number by the denominator, then add the numerator. Keep the denominator the same.

Convert each mixed numeral to an improper fraction

1. $1 \frac{1}{3}$ _____ **$\frac{4}{3}$** _____

2. $2 \frac{3}{4}$ _____ **$\frac{11}{4}$** _____

3. $3 \frac{2}{5}$ _____ **$\frac{17}{5}$** _____

4. $4 \frac{1}{6}$ _____ **$\frac{25}{6}$** _____

5. $2 \frac{5}{8}$ _____ **$\frac{21}{8}$** _____

6. $5 \frac{2}{7}$ _____ **$\frac{37}{7}$** _____

7. $6 \frac{1}{4}$ _____ **$\frac{25}{4}$** _____

8. $3 \frac{4}{9}$ _____ **$\frac{31}{9}$** _____

9. $7 \frac{3}{5}$ _____ **$\frac{38}{5}$** _____

10. $4 \frac{5}{6}$ _____ **$\frac{29}{6}$** _____

11. $2 \frac{7}{10}$ _____ **$\frac{27}{10}$** _____

12. $8 \frac{1}{3}$ _____ **$\frac{25}{3}$** _____

CONVERTING MIXED NUMERALS TO IMPROPER FRACTIONS

CORE - PAGE 2

Name: _____

Date: _____

Convert each mixed numeral to an improper fraction.

1. $9 \frac{2}{5}$ _____

2. $7 \frac{5}{8}$ _____

3. $6 \frac{7}{9}$ _____

4. $10 \frac{3}{4}$ _____

5. $8 \frac{5}{6}$ _____

6. $11 \frac{1}{7}$ _____

7. $5 \frac{11}{12}$ _____

8. $12 \frac{2}{3}$ _____

9. $4 \frac{7}{10}$ _____

10. $13 \frac{3}{5}$ _____

11. $6 \frac{5}{11}$ _____

12. $9 \frac{7}{8}$ _____

13. $15 \frac{1}{6}$ _____

14. $3 \frac{13}{15}$ _____

REASONING

Why does the denominator stay the same when a mixed numeral is converted to an improper fraction?

CONVERTING MIXED NUMERALS TO IMPROPER FRACTIONS

CORE - PAGE 2

Name: **ANSWERS**

Date: _____

Convert each mixed numeral to an improper fraction.

1. $9 \frac{2}{5}$ **$\frac{47}{5}$**

2. $7 \frac{5}{8}$ **$\frac{61}{8}$**

3. $6 \frac{7}{9}$ **$\frac{61}{9}$**

4. $10 \frac{3}{4}$ **$\frac{43}{4}$**

5. $8 \frac{5}{6}$ **$\frac{53}{6}$**

6. $11 \frac{1}{7}$ **$\frac{78}{7}$**

7. $5 \frac{11}{12}$ **$\frac{71}{12}$**

8. $12 \frac{2}{3}$ **$\frac{38}{3}$**

9. $4 \frac{7}{10}$ **$\frac{47}{10}$**

10. $13 \frac{3}{5}$ **$\frac{68}{5}$**

11. $6 \frac{5}{11}$ **$\frac{71}{11}$**

12. $9 \frac{7}{8}$ **$\frac{79}{8}$**

13. $15 \frac{1}{6}$ **$\frac{91}{6}$**

14. $3 \frac{13}{15}$ **$\frac{58}{15}$**

REASONING

Why does the denominator stay the same when a mixed numeral is converted to an improper fraction?

The denominator names the size of each fractional part, so it stays the same.

Only the number of those parts changes.

SIMPLIFY AFTER CONVERTING

Name: _____

Date: _____

Convert each improper fraction to a mixed numeral. Then simplify the fractional part.

REMEMBER

Find a common factor of the numerator and denominator.
Divide both by the same factor.

$$\frac{a}{b}$$



$$\frac{a \div k}{b \div k}$$

1. $\frac{14}{6}$

Step 1: _____

Step 2: _____

2. $\frac{22}{8}$

Step 1: _____

Step 2: _____

3. $\frac{27}{9}$

Step 1: _____

Step 2: _____

4. $\frac{32}{12}$

Step 1: _____

Step 2: _____

5. $\frac{35}{15}$

Step 1: _____

Step 2: _____

6. $\frac{42}{16}$

Step 1: _____

Step 2: _____

7. $\frac{45}{18}$

Step 1: _____

Step 2: _____

8. $\frac{50}{20}$

Step 1: _____

Step 2: _____

9. $\frac{54}{24}$

Step 1: _____

Step 2: _____

10. $\frac{63}{27}$

Step 1: _____

Step 2: _____

11. $\frac{70}{30}$

Step 1: _____

Step 2: _____

12. $\frac{81}{36}$

Step 1: _____

Step 2: _____

SIMPLIFY AFTER CONVERTING

Name: **ANSWERS**

Date: _____

Convert each improper fraction to a mixed numeral. Then simplify the fractional part.

REMEMBER

Find a common factor of the numerator and denominator.
Divide both by the same factor.

$$\frac{a}{b} \rightarrow \frac{a \div k}{b \div k}$$

1. $\frac{14}{6}$ Step 1: $2 \frac{2}{6}$
Step 2: $2 \frac{1}{3}$

2. $\frac{22}{8}$ Step 1: $2 \frac{6}{8}$
Step 2: $2 \frac{3}{4}$

3. $\frac{27}{9}$ Step 1: 3
Step 2: **already simplest**

4. $\frac{32}{12}$ Step 1: $2 \frac{8}{12}$
Step 2: $2 \frac{2}{3}$

5. $\frac{35}{15}$ Step 1: $2 \frac{5}{15}$
Step 2: $2 \frac{1}{3}$

6. $\frac{42}{16}$ Step 1: $2 \frac{10}{16}$
Step 2: $2 \frac{5}{8}$

7. $\frac{45}{18}$ Step 1: $2 \frac{9}{18}$
Step 2: $2 \frac{1}{2}$

8. $\frac{50}{20}$ Step 1: $2 \frac{10}{20}$
Step 2: $2 \frac{1}{2}$

9. $\frac{54}{24}$ Step 1: $2 \frac{6}{24}$
Step 2: $2 \frac{1}{4}$

10. $\frac{63}{27}$ Step 1: $2 \frac{9}{27}$
Step 2: $2 \frac{1}{3}$

11. $\frac{70}{30}$ Step 1: $2 \frac{10}{30}$
Step 2: $2 \frac{1}{3}$

12. $\frac{81}{36}$ Step 1: $2 \frac{9}{36}$
Step 2: $2 \frac{1}{4}$

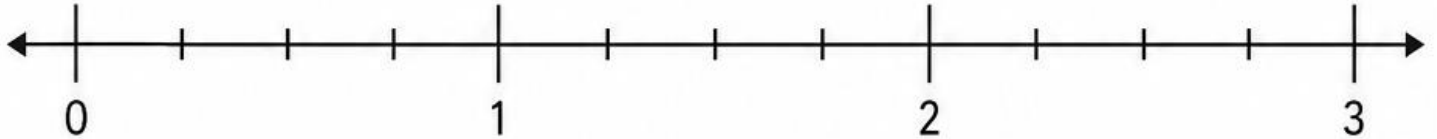
FRACTION REASONING CHALLENGE

NUMBER LINES - PAGE 1

Name: _____

Date: _____

A. Place and label $\frac{5}{4}$, $\frac{7}{4}$, $\frac{9}{4}$ and $\frac{11}{4}$ on the number line.



B. Complete the equivalent forms.

1. $\frac{6}{5} = 1 \frac{\quad}{5}$

2. $\frac{13}{6} = \text{---} \frac{\quad}{6}$

3. $3 \frac{2}{7} = \frac{\quad}{7}$

4. $\frac{\quad}{8} = 4 \frac{3}{8}$

C. Compare each pair. Write $<$, $>$ or $=$ and explain one choice.

1. $\frac{17}{5}$ — $3 \frac{2}{5}$ _____

2. $\frac{22}{7}$ — $3 \frac{1}{7}$ _____

3. $\frac{19}{6}$ — $3 \frac{1}{6}$ _____

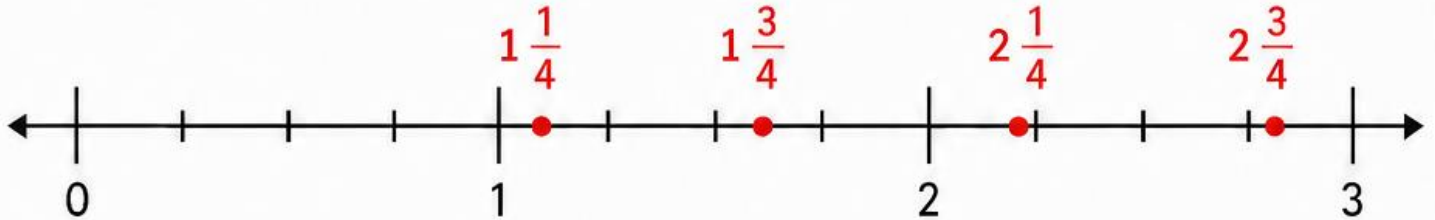
FRACTION REASONING CHALLENGE

NUMBER LINES - PAGE 1

Name: **ANSWERS**

Date: _____

A. Place and label $5/4$, $7/4$, $9/4$ and $11/4$ on the number line.



B. Complete the equivalent forms.

1. $\frac{6}{5} = 1\frac{1}{5}$

2. $\frac{13}{6} = 2\frac{1}{6}$

3. $3\frac{2}{7} = \frac{23}{7}$

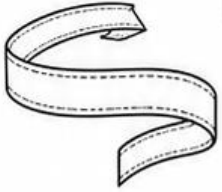
4. $\frac{35}{8} = 4\frac{3}{8}$

C. Compare each pair. Write $<$, $>$ or $=$ and explain one choice.

1. $\frac{17}{5} = 3\frac{2}{5}$ $17/5 = 3\frac{2}{5}$, so the forms are equivalent.

2. $\frac{22}{7} = 3\frac{1}{7}$

3. $\frac{19}{6} = 3\frac{1}{6}$



FRACTION REASONING CHALLENGE

PROBLEMS - PAGE 2

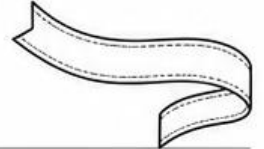


Name: _____

Date: _____

Show your working and explain your reasoning.

1. A class cuts 17 quarter-metre pieces of ribbon.
How many metres of ribbon is this as a mixed numeral?



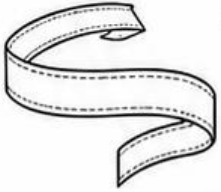
2. A science group uses 23 one-fifth-litre scoops of water.
How many litres is this as a mixed numeral?



3. A walking trail is marked as $4\frac{1}{3}$ km.
Another sign says 2.5 km.
Which distance is greater, or are they equal?
Prove your answer.



4. Luca says $18/5 = 3\frac{2}{5}$.
Identify the error and write the correct mixed numeral.



FRACTION REASONING CHALLENGE

PROBLEMS - PAGE 2

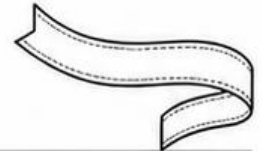


Name: **ANSWERS**

Date: _____

Show your working and explain your reasoning.

1. A class cuts 17 quarter-metre pieces of ribbon.
How many metres of ribbon is this as a mixed numeral?



$17/4 = 4 \frac{1}{4}$ metres.

2. A science group uses 23 one-fifth-litre scoops of water.
How many litres is this as a mixed numeral?



$23/5 = 4 \frac{3}{5}$ litres.

3. A walking trail is marked as $14/3$ km.
Another sign says $2 \frac{2}{3}$ km.
Which distance is greater, or are they equal?
Prove your answer.



They are equal because $14/3 = 4 \frac{2}{3}$.

4. Luca says $18/5 = 3 \frac{2}{5}$.
Identify the error and write the correct mixed numeral.

The remainder is 3, not 2. $18/5 = 3 \frac{3}{5}$.

IMPROPER FRACTIONS & MIXED NUMBERS ASSESSMENT

PAGE 1

Name: _____

Date: _____

Total: ____ / 12

A. Classify each value. (3 marks)



/ 3

1. $\frac{5}{8}$

2. $\frac{9}{4}$

3. $2\frac{1}{3}$

B. Convert to a mixed numeral. Simplify when needed. (4 marks)



/ 4

4. $\frac{11}{4}$

5. $\frac{17}{5}$

6. $\frac{29}{4}$

7. $\frac{38}{7}$

C. Convert to an improper fraction. (3 marks)



/ 3

8. $2\frac{3}{8}$

9. $4\frac{1}{6}$

10. $5\frac{2}{9}$

D. Convert and simplify. (2 marks)



/ 2

11. $\frac{14}{6}$

12. $\frac{50}{12}$

IMPROPER FRACTIONS & MIXED NUMBERS ASSESSMENT

PAGE 1

Name: **ANSWERS**

Date: _____

Total: ____ / 12

A. Classify each value. (3 marks)



/ 3

1. $\frac{5}{8}$

proper

2. $\frac{9}{4}$

improper

3. $2\frac{1}{3}$

mixed

B. Convert to a mixed numeral. Simplify when needed. (4 marks)



/ 4

4. $\frac{11}{4}$

$2\frac{3}{4}$

5. $\frac{17}{5}$

$3\frac{2}{5}$

6. $\frac{29}{6}$

$4\frac{5}{6}$

7. $\frac{38}{7}$

$5\frac{3}{7}$

C. Convert to an improper fraction. (3 marks)



/ 3

8. $2\frac{3}{8}$

$\frac{19}{8}$

9. $4\frac{1}{6}$

$\frac{25}{6}$

10. $5\frac{2}{9}$

$\frac{47}{9}$

D. Convert and simplify. (2 marks)



/ 2

11. $\frac{14}{6}$

$2\frac{1}{3}$

12. $\frac{50}{12}$

$4\frac{1}{6}$

IMPROPER FRACTIONS & MIXED NUMBERS ASSESSMENT

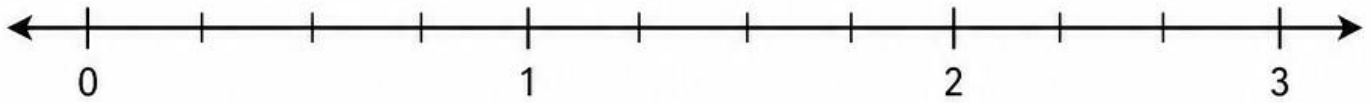
REASONING & APPLICATION - PAGE 2

Name: _____

Date: _____

Total: ____ / 8

1. Place and label $\frac{5}{4}$ and $\frac{9}{4}$ on the number line from 0 to 3. (2 marks)



2. Convert $\frac{23}{6}$ to a mixed numeral. Explain what the quotient and remainder represent. (2 marks)

3. A market stall packs 27 quarter-kilogram bags of rice. What total mass is this as a mixed numeral? (1 mark)



4. Sienna says $4\frac{2}{5} = \frac{18}{5}$. Identify the error and write the correct improper fraction. (2 marks)

5. Compare $\frac{31}{8}$ and $3\frac{7}{8}$. Write $<$, $>$ or $=$. (1 mark)

$$\frac{31}{8} \quad \bigcirc \quad 3\frac{7}{8}$$

IMPROPER FRACTIONS & MIXED NUMBERS ASSESSMENT

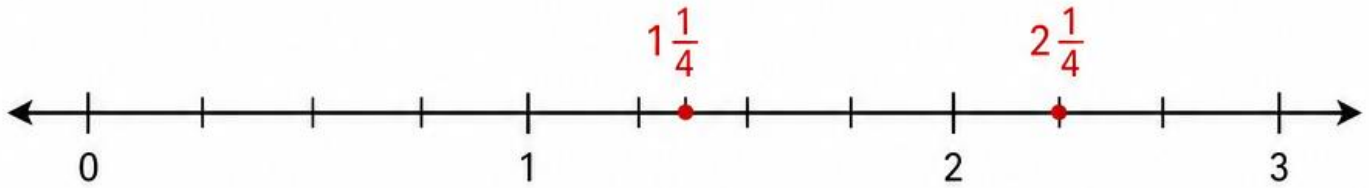
REASONING & APPLICATION - PAGE 2

Name: ANSWERS

Date: _____

Total: ____ / 8

1. Place and label $\frac{5}{4}$ and $\frac{9}{4}$ on the number line from 0 to 3. (2 marks)



2. Convert $\frac{23}{6}$ to a mixed numeral. Explain what the quotient and remainder represent. (2 marks)

$\frac{23}{6} = 3\frac{5}{6}$. The quotient 3 is the whole number and the remainder 5 is the numerator.

3. A market stall packs 27 quarter-kilogram bags of rice. What total mass is this as a mixed numeral? (1 mark)

$$\frac{27}{4} \text{ kg} = 6\frac{3}{4} \text{ kg.}$$



4. Sienna says $4\frac{2}{5} = \frac{18}{5}$. Identify the error and write the correct improper fraction. (2 marks)

$4 \times 5 + 2 = 22$, so the correct fraction is $\frac{22}{5}$.

5. Compare $\frac{31}{8}$ and $3\frac{7}{8}$. Write $<$, $>$ or $=$. (1 mark)

$$\frac{31}{8} \quad (=) \quad 3\frac{7}{8}$$

IMPROPER FRACTIONS YR5 RUBRIC

Student: _____

Date: _____

CRITERIA	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
Identifies fraction forms	Needs support to identify proper, improper and mixed forms.	Identifies some forms with prompts.	Correctly identifies common fraction forms.	Accurately identifies forms and explains the features.	Justifies classifications using precise mathematical language.
Converts improper to mixed	Needs support to divide and interpret remainders.	Converts simple examples with prompts.	Correctly converts familiar improper fractions.	Converts accurately and simplifies when needed.	Converts efficiently and verifies equivalence.
Converts mixed to improper	Needs support to use multiply then add.	Uses the method with prompts.	Correctly converts familiar mixed numerals.	Converts accurately across varied denominators.	Explains and checks the method independently.
Simplifies and checks equivalence	Rarely simplifies or checks results.	Simplifies some results with prompts.	Simplifies common results correctly.	Consistently simplifies and checks results.	Selects efficient checks and explains equivalence.
Explains reasoning and applies skills	Provides limited working or explanation.	Shows partial working in familiar contexts.	Shows clear working and solves routine problems.	Explains choices and solves unfamiliar problems.	Builds convincing arguments and corrects errors.

Teacher comment: _____

Improper Fractions & Mixed Numbers



Learning Goals

- recognise proper, improper and mixed-number fractions
- convert between improper fractions and mixed numbers
- simplify answers and explain each step



Three Fraction Forms

Proper fraction: numerator < denominator

Improper fraction: numerator $\geq$ denominator

Mixed number: whole number + proper fraction

Example family: $\frac{2}{5}$, $\frac{8}{5}$ and $1\frac{3}{5}$



When Is a Fraction Greater Than One?

Compare numerator and denominator.

$\frac{7}{4}$ is greater than 1 because

$\frac{4}{4}$ equals exactly 1.

$\frac{3}{4}$ is less than



Improper Fraction → Mixed Number

1. Divide the numerator by the denominator.
2. The quotient is the whole number.
3. The remainder becomes the new numerator.
4. Keep the original denominator.



Worked Example: $17/5$

$$17 \div 5 = 3 \text{ remainder } 2$$

Whole number = 3

Fractional part = $\frac{2}{5}$

Therefore $17/5 = 3\frac{2}{5}$



Use Quotient and Remainder

For $23/6$:

$$23 \div 6 = 3 \text{ remainder } 5$$

$$\text{So } 23/6 = 3 \frac{5}{6}$$

The remainder must always be less than the denominator.



Check by Reversing

Check $17/5 = 3 \frac{2}{5}$:

$$3 \times 5 + 2 = 17$$

Put 17 over the original denominator.

The check returns 17, so the conversion is correct.



Mixed Number → Improper Fraction

1. Multiply the whole number by the denominator.
2. Add the numerator.
3. Put the total over the original denominator.

Think: multiply, add, keep



Worked Example: $4\frac{3}{7}$

$$4 \times 7 = 28$$

$$28 + 3 = 31$$

Keep denominator 7

Therefore $4\frac{3}{7} = 4\frac{31}{7}$



Simplify After Converting

$$14/6 = 2 \frac{2}{6}$$

The fraction $2/6$ simplifies to $1/3$.

Therefore $14/6 = 2 \frac{1}{3}$.

Always check whether the fraction part can be simplified.



Place Fractions on a Number Line

$17/5 = 3 \frac{2}{5}$, so it lies between 3 and 4.

Divide the interval into fifths

Move two fifths past 3

Location on a number line confirms the size of the fraction.



Compare Equivalent Forms

$13/4$ and $3 \frac{1}{4}$ name the same value.

$13 \div 4 = 3$ remainder 1

So $13/4 = 3 \frac{1}{4}$.

Converting to the same form makes comparison easier.



Common Mistakes to Avoid

- changing the denominator during conversion
- writing a remainder equal to or greater than the denominator
- forgetting to add the original denominator
- leaving the fractional part unsimplified



Guided Practice

Convert and simplify where needed:

1. $11/4$

2. $19/6$

3. $2\frac{5}{8}$

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

Show division or multiplication for every item.



Guided Practice Answers

1. $1\frac{1}{4} = 2\frac{3}{4}$

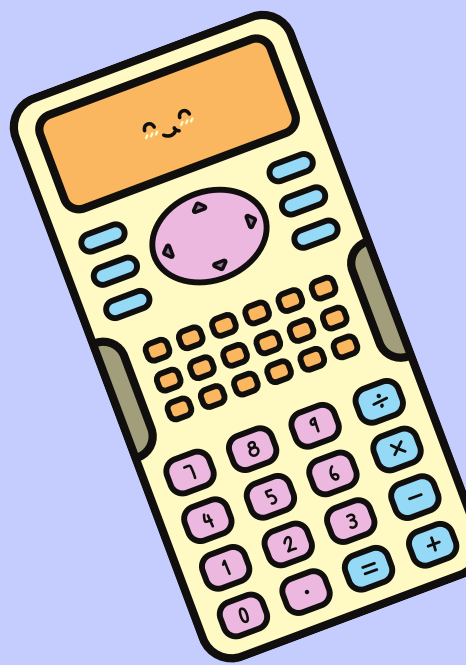
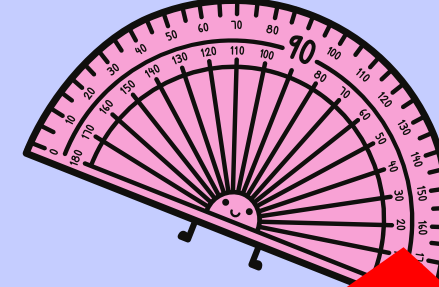
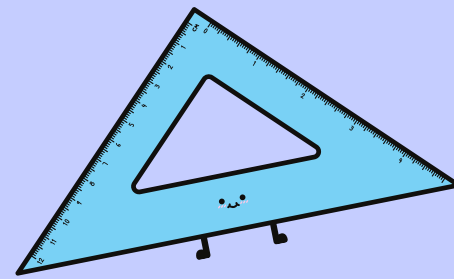
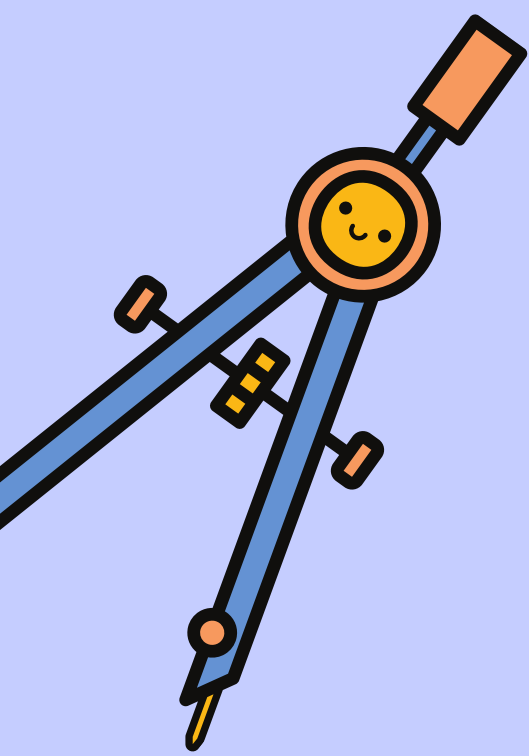
2. $1\frac{9}{6} = 3\frac{1}{6}$

3. $2\frac{5}{8} = 2\frac{1}{8}$

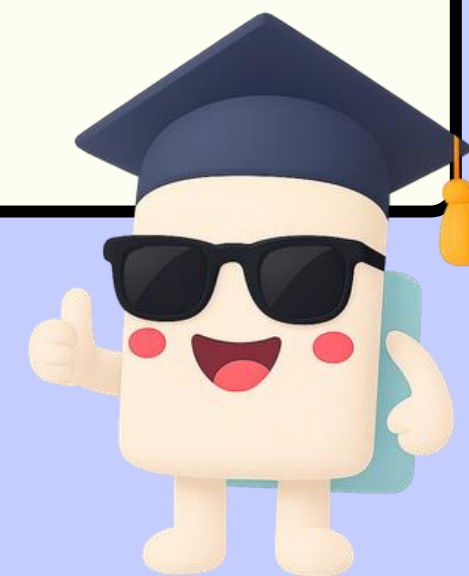
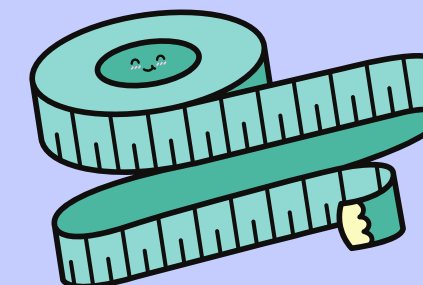
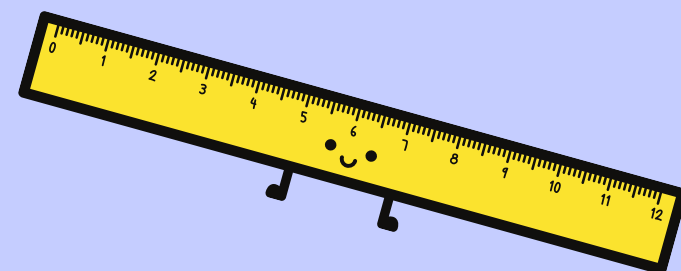
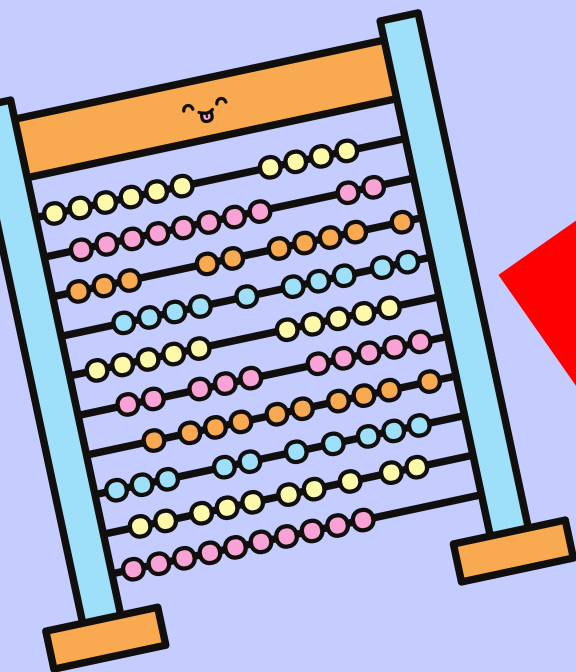
4. $5\frac{2}{3} = 17\frac{1}{3}$

Check to make sure you're correct in the conversion.





Well Done!



PREVIEW

Improper Fractions & Mixed Numbers Quiz



Question 1

Which description best fits $11/4$?

- A. Proper fraction
- B. Improper fraction
- C. Whole number
- D. Unit fraction



Answer 1

B. Improper fraction

The numerator, 5, is greater than the denominator, 4.



Question 2

Convert $17/5$ to a mixed number.

Show the division and write the remainder as a fraction.



Answer 2

$$17 \div 5 = 3 \text{ remainder } 2$$

$$17/5 = 3 \frac{2}{5}$$



Question 3

True or false?

$$2 \frac{3}{4} = 11/4$$



Answer 3

True.

$$2 \times 4 + 3 = 11, \text{ so } 3/4 = 11/4.$$



Question 4

Which improper fraction is equal to $4\frac{1}{3}$?

A. $\frac{9}{3}$

B. $\frac{12}{3}$

C. $\frac{13}{3}$

D. $\frac{15}{3}$



Answer 4

C. 13/3

$$4 \times 3 + 1 = 13.$$



Question 5

Convert and simplify $14/6$

Give the answer as a mixed number in simplest form.



Answer 5

$$14/6 = 2 \frac{2}{6} = 2 \frac{1}{3}$$



Question 6

Use quotient and remainder to convert $23/5$



Answer 6

$$23 \div 5 = 4 \text{ remainder } 3$$

$$23/5 = 4 \frac{3}{5}$$



Question 7

True or false?

$\frac{9}{9}$ is a proper fraction.



Answer 7

False.

$9/9$ equals 1. A proper fraction has a numerator smaller than its denominator.



Question 8

Complete the conversion:

$$3 \frac{2}{7} = ?/7$$



Answer 8

$$3 \times 7 + 2 = 23$$

$$3 \frac{2}{7} = \frac{23}{7}$$



Question 9

Compare $1\frac{3}{4}$ and $3\frac{1}{4}$.

Use $<$, $>$ or $=$.



Answer 9

$$13/4 = 3 \frac{1}{4}$$

The two forms represent the same value.



Question 10

A ribbon is 17 quarter-metres long.
How many metres is this as a mixed number?



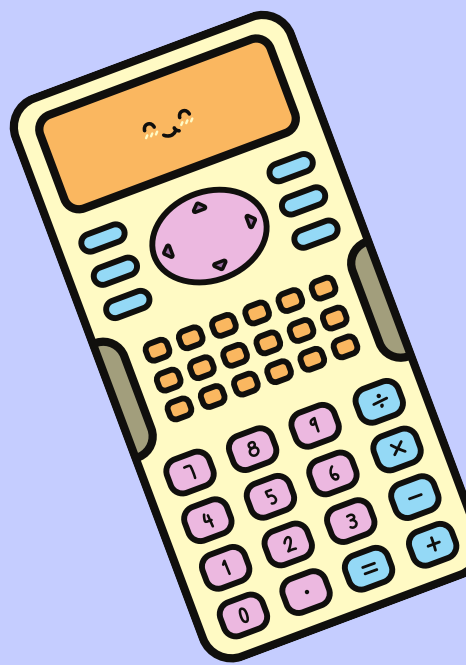
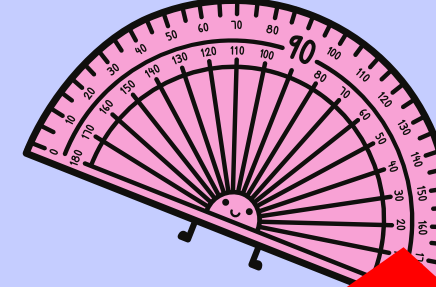
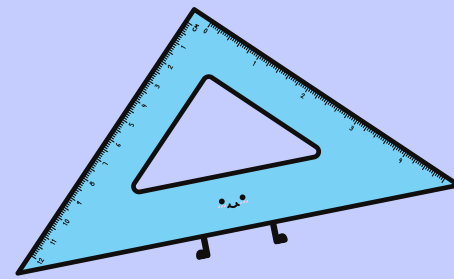
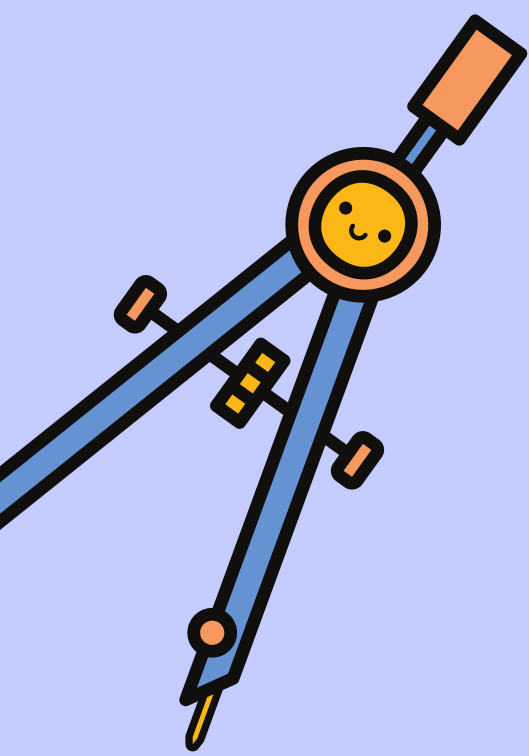
Answer 10

17 quarters = $17/4$

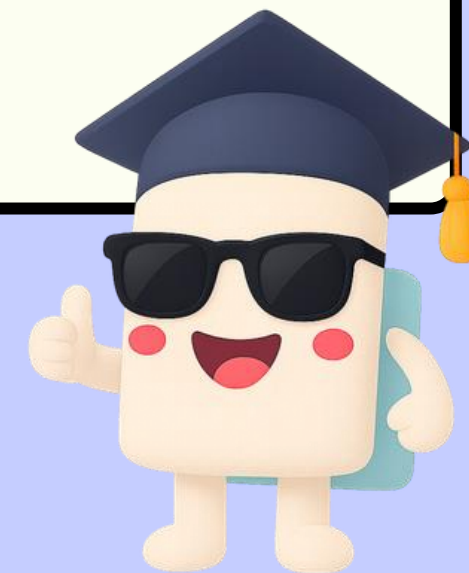
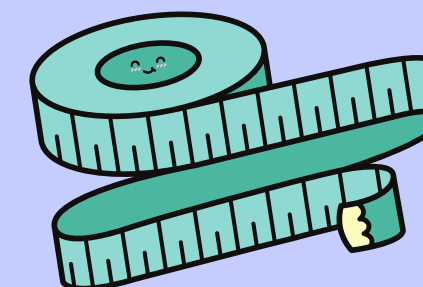
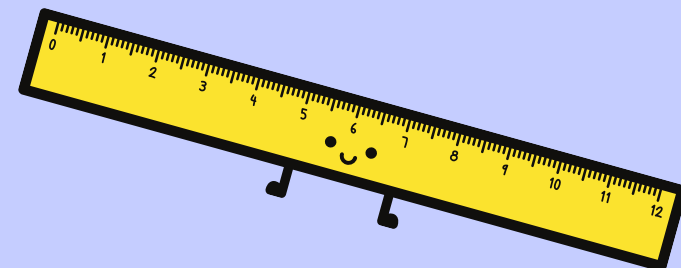
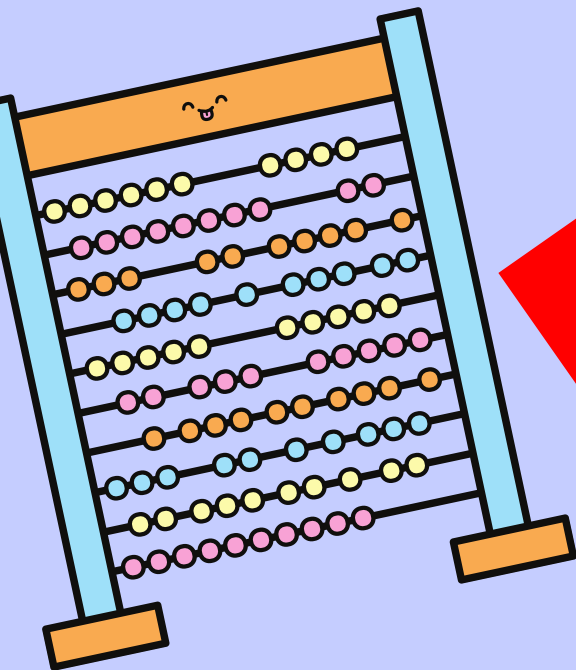
$17 \div 4 = 4$ remainder 1

The ribbon is $4\frac{1}{4}$ metres long.





Well Done!



PREVIEW