Rational Numbers

Exercise 1-05

1 Change the following to improper fractions.

a $1\frac{1}{2}$ b $3\frac{4}{5}$ c $2\frac{2}{3}$ d $5\frac{7}{8}$ e $7\frac{3}{4}$ f $2\frac{3}{8}$

g $1\frac{9}{10}$ h $12\frac{1}{2}$ i $7\frac{5}{6}$ j $3\frac{5}{9}$ k $5\frac{3}{7}$ l $7\frac{4}{10}$

m $33\frac{1}{3}$ n $8\frac{2}{5}$ o $17\frac{1}{2}$ p $9\frac{4}{7}$ q $66\frac{2}{3}$ r $6\frac{1}{4}$

s $4\frac{1}{6}$ t $7\frac{3}{5}$ u $2\frac{3}{4}$ v $5\frac{2}{3}$ w $4\frac{5}{8}$ x $6\frac{3}{11}$

2 Change the following to mixed numerals.

a $\frac{7}{2}$ b $\frac{9}{5}$ c $\frac{13}{8}$ d $\frac{9}{4}$ e $\frac{10}{7}$ f $\frac{11}{5}$

g $\frac{13}{7}$ h $\frac{31}{2}$ i $\frac{22}{3}$ j $\frac{35}{4}$ k $\frac{69}{11}$ l $\frac{47}{6}$

m $\frac{61}{9}$ n $\frac{51}{10}$ o $\frac{59}{7}$ p $\frac{43}{20}$ q $\frac{63}{5}$ r $\frac{32}{15}$

s $\frac{74}{9}$ t $\frac{77}{8}$ u $\frac{14}{5}$ v $\frac{22}{9}$ w $\frac{33}{10}$ x $\frac{24}{13}$

3 Complete these pairs of equivalent fractions:

a $\frac{7}{8}=\frac{\square}{16}$ b $\frac{2}{5}=\frac{\square}{10}$ c $\frac{3}{10}=\frac{\square}{40}$ d $\frac{6}{7}=\frac{\square}{42}$ e $\frac{11}{12}=\frac{\square}{36}$

f $\frac{1}{3}=\frac{\square}{18}$ g $\frac{5}{6}=\frac{\square}{66}$ h $\frac{3}{4}=\frac{\square}{24}$ i $\frac{2}{3}=\frac{10}{\square}$ j $\frac{3}{7}=\frac{27}{\square}$

k $\frac{5}{8}=\frac{45}{\square}$ l $\frac{5}{12}=\frac{20}{\square}$ m $\frac{7}{10}=\frac{14}{\square}$ n $\frac{9}{11}=\frac{36}{\square}$ o $\frac{4}{5}=\frac{12}{\square}$

p $\frac{6}{7}=\frac{54}{\square}$ q $\frac{1}{2}=\frac{\square}{24}$ r $\frac{15}{16}=\frac{30}{\square}$ s $\frac{5}{9}=\frac{35}{\square}$ t $\frac{2}{3}=\frac{\square}{36}$

4 Complete these pairs of equivalent fractions:

a $\frac{15}{20}=\frac{\square}{4}$ b $\frac{36}{40}=\frac{\square}{20}$ c $\frac{40}{50}=\frac{\square}{5}$ d $\frac{72}{80}=\frac{\square}{10}$ e $\frac{12}{15}=\frac{\square}{5}$

f $\frac{14}{16}=\frac{\square}{8}$ g $\frac{48}{56}=\frac{\square}{7}$ h $\frac{30}{35}=\frac{\square}{7}$ i $\frac{90}{100}=\frac{9}{\square}$ j $\frac{21}{27}=\frac{7}{\square}$

k $\frac{15}{18}=\frac{5}{\square}$ l $\frac{42}{48}=\frac{7}{\square}$ m $\frac{13}{39}=\frac{1}{\square}$ n $\frac{8}{12}=\frac{2}{\square}$ o $\frac{80}{88}=\frac{10}{\square}$

p $\frac{30}{34}=\frac{15}{\square}$ q $\frac{16}{20}=\frac{\square}{5}$ r $\frac{36}{48}=\frac{12}{\square}$ s $\frac{55}{60}=\frac{11}{\square}$ t $\frac{60}{72}=\frac{\square}{12}$

5 Simplify:

a $\frac{9}{12}$ b $-\frac{30}{50}$ c $\frac{36}{44}$ d $\frac{100}{300}$ e $-\frac{45}{55}$ f $-\frac{16}{20}$

g $\frac{144}{196}$ h $\frac{24}{32}$ i $\frac{200}{450}$ j $\frac{375}{1000}$ k $-\frac{96}{144}$ l $\frac{72}{48}$

m $\frac{56}{20}$ n $-\frac{240}{48}$ o $\frac{225}{45}$ p $-\frac{33}{55}$ q $\frac{39}{52}$ r $\frac{24}{20}$

6 Write a mixed numeral between:

a 5 and 6 b 2 and 3 c 9 and 10.

7 What whole number could be placed in the box so that:

a $\frac{\square}{5}$ has a value between 6 and 7? b $\frac{\square}{3}$ has a value between 3 and 4?

c $\frac{\square}{8}$ has a value between 2 and 3? d $\frac{\square}{6}$ has a value between 4 and 5?

e $\frac{\square}{7}$ has a value between 7 and 8? f $\frac{\square}{4}$ has a value between 8 and 9?

8 a If $\frac{\square}{4}$ has a value between 6 and 7, the number in the box could be:

    A 28   **B** 25   **C** 15   **D** 27

b If $\frac{\square}{9}$ has a value between 3 and 4, the number in the box could be:

    A 30   **B** 36   **C** 32   **D** 33

c If $\frac{\square}{7}$ has a value between 4 and 5, the number in the box could be:

    A 14   **B** 22   **C** 30   **D** 38

d If $\frac{15}{\square}$ has a value between 2 and 3, the number in the box could be:

    A 4   **B** 10   **C** 6   **D** 8

e If $\frac{22}{\square}$ has a value between 7 and 8, the number in the box could be:

    A 5   **B** 3   **C** 4   **D** 2

f If $\frac{28}{\square}$ has a value between 2 and 3, the number in the box could be:

    A 10   **B** 16   **C** 14   **D** 12

9 What whole number could be placed in the box so that:

a $\frac{17}{\square}$ has a value between 3 and 4?

b $\frac{23}{\square}$ has a value between 2 and 3?

c $\frac{49}{\square}$ has a value between 4 and 5?

d $\frac{\square}{9}$ has a value between 6 and 7?

WHAT SORT OF SOUP IS NOT CLEVER? ??? Answer the questions to find the puzzle code.

231 67 54 + 307 **L**	6 003 − 4 237 **F**	216 × 25 **K**
63 × 7 **V**	28) 924 **R**	2 009 736 + 848 **O**
57 − 23 = ___ **Q**	516 28 + 75 **T**	7) 2 219 **P**
4) 372 **M**	318 × 20 **H**	527 − 253 **B**
2 + 9 + 7 + 8 + 4 + 3 + 4 + 1 + 8 = **S**	653 − 289 **W**	3) 24 435 **U**
5 167 − 3 086 **A**	43 × 96 **J**	2 307 + 1 094 **E**
6) 18 012 **I**	613 205 + 976 **C**	2 846 × 8 **N**

93	3 293	441	3 401	274	2 061	1 794	5 400	619	364	3 293

659	3 401	619	619	3 401	33	43	3 002	20 368	619	6 300	3 401

2 081	659	317	6 300	2 061	274	3 401	619	1 766	3 293	33

"

441	4 128	5 400	3 401	93	8 146	34	364	33

!"

WHAT WAS THE TORTOISE DOING ON THE HIGHWAY?

1	4	12	8	7	2	16	21	19	3	9	27	10	15

5	11	13	17	14	6

Answer the questions to decode the puzzle.

e $(6 + 3) \div [2 + 1]$ =	$24 - 6 + 1$ = **m**	
n $5 + 4 \times 3 \div 2$ =	$2 \times 11 + 3 - 2 \times 4$ = **o**	
u $15 + 25 \div 5 - 12$ =	$53 - 26 \times 2$ = **a**	
r $7 \times 2 - 1 \times 8$ =	$1 + (2 + (3 + [4 + 5]) \times 2)$ = **r**	
t $50 - 7 \times (3 + 3) + 1$ =	$100 \div (2 \times (8 + (12 \div 3)) + 2)$ = **a**	
e $2 + (3 + (4 - 2 \times 1) + 9)$ =	$(36 + 4 \div 2) \div (16 + 3)$ = **t**	
b $80 \div (5 \times 6 + 4 - 7 \times 2)$ =	$(20 - (18 + 1) + (16 - 1)) - 3$ = **h**	
u $8 + 3 \times 2$ =	$2 + 3 \times 4 - 10 \div 5$ = **o**	
e $35 \times (8 - 3 \times 2) \div 7$ =	$3 + ((4 - 1) \times 6) - 6$ = **s**	
t $10 \div 5 \times 2 + 3$ =	$1 + 2 \times 3 + 4 \times 5 - 6$ = **n**	