

# FRACTION ARITHMETIC

CONTENT DOMAIN REFERENCES:  
F4, F5

# KS2 SATS

## PRACTICE QUESTIONS BY TOPIC

1

$$\frac{4}{6} + \frac{3}{6} =$$

[2017]

$$\frac{4}{6} + \frac{3}{6} = \frac{7}{6}$$

[SAME DENOMINATOR]

[1 mark]

2

$$\frac{4}{5} - \frac{1}{5} =$$

[2016S]

$$\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$$

SAME DENOMINATOR

[1 mark]

3

Tick (✓) **two** cards that give a **total** of  $\frac{1}{2}$

[New]

$\frac{3}{10}$     $\frac{1}{6}$     $\frac{3}{8}$     $\frac{1}{10}$     $\frac{1}{8}$     $\frac{3}{6}$

Red checkmarks are placed below the  $\frac{3}{8}$  and  $\frac{1}{8}$  cards.

$$\frac{3}{8} + \frac{1}{8} = \frac{4}{8} \left( = \frac{1}{2} \right)$$

[1 mark]

4

$$\frac{62}{100} - \frac{36}{100} =$$

[2017]

$$\frac{62}{100} - \frac{36}{100} = \frac{26}{100} = \frac{13}{50}$$

SAME DENOMINATOR

$\frac{13}{50}$

[1 mark]

5

$$\frac{3}{4} - \frac{3}{8} =$$

[2017]

$$\frac{3}{4} - \frac{3}{8} = \frac{6}{8} - \frac{3}{8} = \frac{3}{8}$$

SAME DENOMINATOR

$\frac{3}{8}$

[1 mark]

6

$$\frac{3}{10} - \frac{1}{20} =$$

[2016]

$$\frac{3}{10} - \frac{1}{20} = \frac{6}{20} - \frac{1}{20} = \frac{5}{20} = \frac{1}{4}$$

SAME DENOMINATOR

$\frac{1}{4}$

[1 mark]

7

$$\frac{2}{6} - \frac{1}{8} =$$

[2017]

Handwritten solution for problem 7:

$$\frac{2}{6} - \frac{1}{8} = \frac{8}{24} - \frac{3}{24} = \frac{5}{24}$$

The denominators 24 and 24 are underlined in the original image. A bracket under the second 24 is labeled "SAME DENOMINATOR". The final answer  $\frac{5}{24}$  is boxed.

[1 mark]

8

$$\frac{3}{4} + \frac{2}{5} =$$

[2016S]

Handwritten solution for problem 8:

$$\frac{3}{4} + \frac{2}{5} = \frac{15}{20} + \frac{8}{20} = \frac{23}{20}$$

The denominators 20 and 20 are underlined in the original image. A bracket under the second 20 is labeled "SAME DENOMINATOR". The final answer  $1\frac{3}{20}$  is boxed.

[1 mark]

9

$$\frac{1}{4} + \frac{1}{5} + \frac{1}{10} =$$

[2017]

Handwritten solution for problem 9:

$$\frac{1}{4} + \frac{1}{5} + \frac{1}{10} = \frac{5}{20} + \frac{4}{20} + \frac{2}{20} = \frac{11}{20}$$

The denominators 20, 20, and 20 are underlined in the original image. A bracket under the three 20s is labeled "SAME DENOMINATOR". The final answer  $\frac{11}{20}$  is boxed.

[1 mark]



10

$$2\frac{1}{3} + \frac{5}{6} =$$

[2017]

\* [NOTE THAT I CHANGE MIXED NUMBERS INTO IMPROPER FRACTIONS BEFORE I ADD, SUBTRACT, MULTIPLY, DIVIDE]

$$\frac{7}{3} + \frac{5}{6} = \frac{14}{6} + \frac{5}{6} = \frac{19}{6}$$

SAME DENOMINATOR =  $3\frac{1}{6}$

$3\frac{1}{6}$

[1 mark]

11

$$1\frac{4}{5} + \frac{3}{10} =$$

[2016]

$$\frac{9}{5} + \frac{3}{10} = \frac{18}{10} + \frac{3}{10} = \frac{21}{10}$$

SAME DENOMINATOR =  $2\frac{1}{10}$

$2\frac{1}{10}$

[1 mark]

12

$$1\frac{1}{5} - \frac{1}{4} =$$

[2016S]

$$\frac{6}{5} - \frac{1}{4} = \frac{24}{20} - \frac{5}{20} = \frac{19}{20}$$

SAME DENOMINATOR

$\frac{19}{20}$

[1 mark]

13

$$1\frac{1}{4} - \frac{1}{3} =$$

[2016]

$$\frac{5}{4} - \frac{1}{3} = \frac{15}{12} - \frac{4}{12} = \frac{11}{12}$$

SAME  
DENOMINATOR

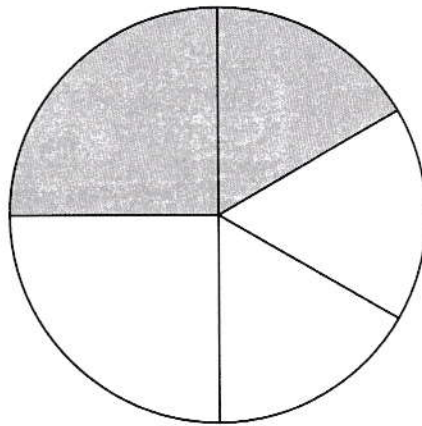
$\frac{11}{12}$

[1 mark]

14

In this circle,  $\frac{1}{4}$  and  $\frac{1}{6}$  are shaded.

[2017]



What fraction of the whole circle is **not** shaded?

$$\frac{1}{4} + \frac{1}{6} = \frac{3}{12} + \frac{2}{12} = \frac{5}{12} \text{ (SHADED)}$$

SAME  
DENOMINATOR

$\frac{7}{12}$

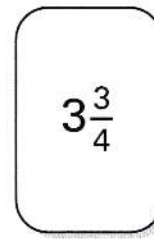
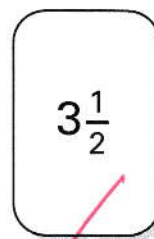
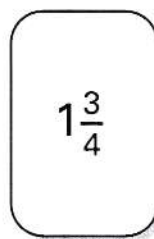
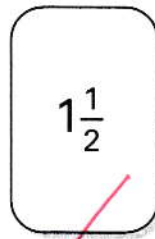
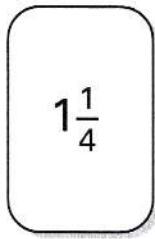
(NOT SHADED)

[2 marks]

15

Tick (✓) two cards that give a total of 5.

[2002]



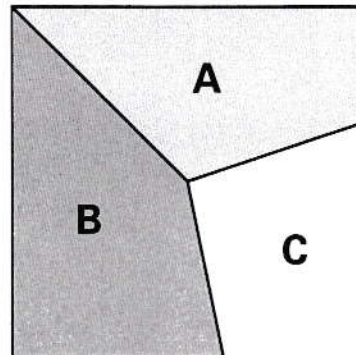
OR  $1\frac{1}{4} + 3\frac{3}{4}$

[1 mark]

16

This square is divided into three parts.

[2002]

Part **A** is  $\frac{1}{3}$  of the area of the square.Part **B** is  $\frac{2}{5}$  of the area of the square.What fraction of the area of the square is part **C**?

$$\frac{1}{3} + \frac{2}{5} = \frac{5}{15} + \frac{6}{15} = \frac{11}{15} \quad (A+B)$$

SAME  
DENOMINATOR

$\frac{4}{15}$

[PART C]

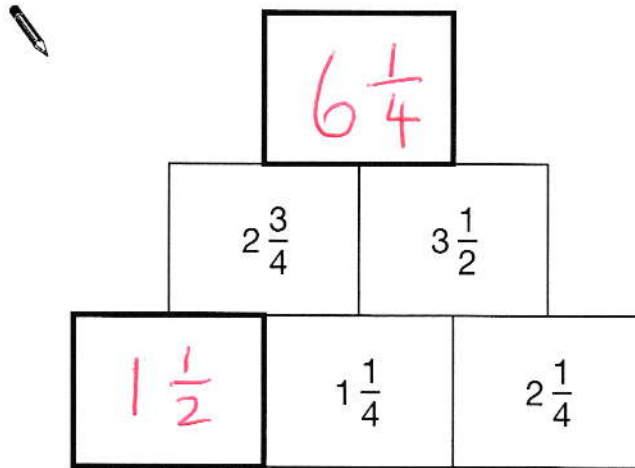
[2 marks]

17

In this diagram, the number in each box is the **sum** of the two numbers below it.

[2014]

Write the missing numbers.

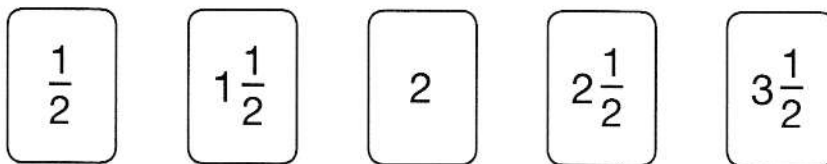


[2 marks]

18

Here are five number cards.

[2010]



Use **three** of the number cards to make this calculation correct.

A pencil icon to the left of a mathematical equation. The equation is  $(1\frac{1}{2} + 3\frac{1}{2}) \times 2 = 10$ . The numbers  $1\frac{1}{2}$ ,  $3\frac{1}{2}$ , and  $2$  are written in red and enclosed in rounded rectangular boxes.

[1 mark]



19

$\frac{3}{4}$  of 840 =

[2000]

$$\frac{1}{4} \times 840 = 210$$

$$\text{so } \frac{3}{4} \times 840 = \underline{\underline{630}}$$

630

[1 mark]

20

$\frac{2}{3}$  of 960 =

[2003]

$$\frac{1}{3} \times 960 = 320$$

$$\text{so } \frac{2}{3} \times 960 = \underline{\underline{640}}$$

640

[1 mark]

21

$\frac{2}{3}$  of £180 =

[2006]

$$\frac{1}{3} \times 180 = 60$$

$$\text{so, } \frac{2}{3} \times 180 = \underline{\underline{120}}$$

£120

[1 mark]



**22**

Match each box to the correct number.

[2001]

One has been done for you.

$\frac{1}{2}$ of 30	45
$\frac{1}{3}$ of 75	40
$\frac{1}{5}$ of 150	35
	30
	25
	20
	15

*(Handwritten connections: A black line connects  $\frac{1}{2}$  of 30 to 15. A red line connects  $\frac{1}{3}$  of 75 to 25. A red line connects  $\frac{1}{5}$  of 150 to 30.)*

[1 mark]

**23**

Three-quarters of a number is 48

[2003]

What is the number?

$$\frac{3}{4} \text{ is } 48, \text{ so } \frac{1}{4} \text{ is } 16$$

$$\rightarrow \frac{4}{4} = \underline{64}$$



64

[1 mark]

**24**

$$\frac{1}{4} \times \frac{1}{8} =$$

[2016S]

$$\frac{1}{4} \times \frac{1}{8} = \frac{1 \times 1}{4 \times 8}$$

$$= \frac{1}{32}$$

$\frac{1}{32}$

[1 mark]

25

$$\frac{4}{6} \times \frac{3}{5} =$$

[2017]

$$\frac{4}{6} \times \frac{3}{5} = \frac{4 \times 3}{6 \times 5}$$

$$= \frac{12}{30} \left( = \frac{2}{5} \right)$$

$\frac{2}{5}$

[1 mark]

26

$$\frac{4}{5} \div 4 =$$

[2017]

↓

$$\frac{4}{5} \times \frac{1}{4} = \frac{4 \times 1}{5 \times 4}$$

$$= \frac{4}{20} \left( = \frac{1}{5} \right)$$

$\frac{1}{5}$

[1 mark]

27

$$\frac{3}{5} \div 3 =$$

[2016]

↓

$$\frac{3}{5} \times \frac{1}{3} = \frac{3 \times 1}{5 \times 3}$$

$$= \frac{3}{15} \left( = \frac{1}{5} \right)$$

$\frac{1}{5}$

[1 mark]

28

$$\frac{5}{8} \div 2 =$$

[2017]

↓

$$\frac{5}{8} \times \frac{1}{2} = \frac{5 \times 1}{8 \times 2}$$

$$= \frac{5}{16}$$

$\frac{5}{16}$

[1 mark]

29

$$\frac{2}{5} \times 140 =$$

[2016]

[OR DO  $\frac{1}{5} \times 140 = 28$ , so  $\frac{2}{5} \times 140 = 56$ ]

$$\frac{2}{5} \times 140 = \frac{280}{5}$$

$$= \underline{\underline{56}}$$

56

[1 mark]

30

$$17 \times 1\frac{1}{2} =$$

[2016S]

[OR DO  $1 \times 17 + \frac{1}{2} \times 17$ ]

↓

$$17 \times \frac{3}{2} = \frac{51}{2}$$

$$= \underline{\underline{25\frac{1}{2}}}$$

$25\frac{1}{2}$

[1 mark]

31

$$1\frac{1}{2} \times 57 =$$

$$[\text{OR DO } 1 \times 57 + \frac{1}{2} \times 57]$$

[2017]

$$\begin{aligned} \frac{3}{2} \times 57 &= \frac{171}{2} \\ &= \underline{\underline{85\frac{1}{2}}} \end{aligned}$$

$85\frac{1}{2}$

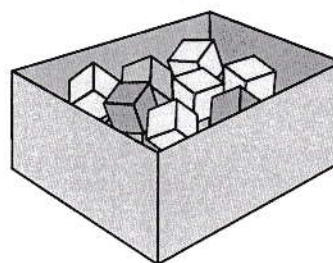
[1 mark]

32

There are 24 coloured cubes in a box.

[2002]

Three-quarters of the cubes are red,  
four of the cubes are blue  
and the rest are green.



How many **green** cubes are in the box?

$$\begin{aligned} \frac{3}{4} \times 24 &= 18 \text{ (RED)} \\ &\quad 4 \text{ (BLUE)} \\ \hline \text{TOTAL} &\quad \underline{\underline{22}} \end{aligned}$$

2 GREEN

One more **blue** cube is put into the box.  $\rightarrow$  5 BLUE, 25 CUBES!

What fraction of the cubes in the box are **blue** now?

$$\frac{5}{25} = \frac{1}{5}$$

$\frac{1}{5}$

[2 marks]