

**Age 11+ Level ★
Worksheet 1****1. Farthest Fraction**

$\frac{7}{15}$ is the largest

rich.maths.org/2452/solution

2. Smashing Time

3 cups are without saucers

rich.maths.org/2454/solution

3. Better Spelling

She need to take 4 more tests

rich.maths.org/6769/solution

4. Bouncing Ball

It bounces to a height of 27cm

rich.maths.org/12828/solution

5. Multiplication Magic Square

$$r + s = \frac{1}{2} + \frac{1}{16} = \frac{9}{16}$$

rich.maths.org/10180/solution

6. Percentage Mad

£1.20

rich.maths.org/2877/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 11+ Level ★
Worksheet 2****1. Tommy's Tankard**

160ml

rich.maths.org/11681/solution**2. Ordering Fractions**

$$\frac{3}{2} \quad \frac{5}{3} \quad \frac{7}{4} \quad \frac{9}{5} \quad \frac{11}{6}$$

rich.maths.org/10142/solution**3. Talulah's Tulips**

$$\frac{15}{60} = \frac{1}{4} \text{ of the tulips are white}$$

rich.maths.org/11684/solution**4. Valuable Percentages**

c) 30% of 30, has the greatest value

rich.maths.org/6786/solution**5. Information Display**

$$\frac{1}{2} \text{ of the dots in the array are illuminated}$$

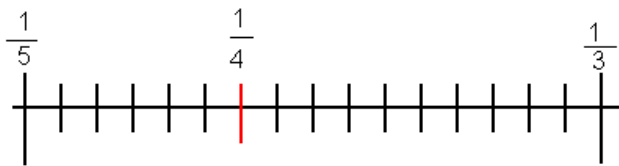
rich.maths.org/5750/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 11+ Level ★★
Worksheet 1****1. Charlie's Money**

He started off with £36

rich.maths.org/13541/solution

2. Pride of Place

rich.maths.org/7141/solution

3. Three Blind Mice

$\frac{8}{27}$ of the cheese is left

rich.maths.org/9767/solution

4. Halfway

$\frac{1}{15}$ is halfway

rich.maths.org/6787/solution

5. Magical Products

3	$\frac{1}{6}$	2
$\frac{2}{3}$	1	$\frac{3}{2}$
$\frac{1}{2}$	6	$\frac{1}{3}$

rich.maths.org/7189/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 11+ Level ★★★
Worksheet 1****1. Too Close to Call**

From smallest to largest:

$$\frac{111110}{111111} \quad \frac{333331}{333334} \quad \frac{222221}{222223}$$

rich.maths.org/2451/solution**2. Tricky Fractions**

$$x = 341$$

rich.maths.org/12878/solution**3. Peanut Harvest** $\frac{1}{5}$ of the original harvest was leftrich.maths.org/12586/solution**4. Slightly Outnumbered**

The smallest possible number of girls is 5 (in a class of 11 pupils)

rich.maths.org/6757/solution**5. How Shady?** $\frac{127}{256}$ of the largest triangle is shadedrich.maths.org/13239/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 14+ Level ★
Worksheet 1****1. A Drink of Water**

Rachel drinks 450ml

rich.maths.org/10191/solution

2. Entrance Exam

There are 25 questions on the test

rich.maths.org/12610/solution

3. Petrol Station

Andrea puts $18\frac{1}{3}$ litres of petrol in the tank

rich.maths.org/7163/solution

4. The Grand Old Duke of York

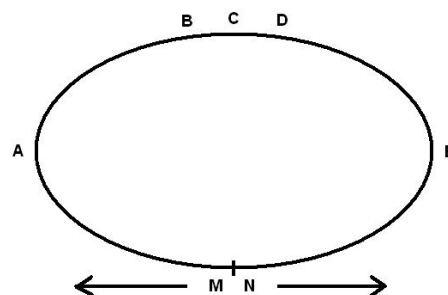
76.5 % of the army remained

rich.maths.org/11724/solution

5. Meeting Point

They will meet at A

rich.maths.org/6200/solution



These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 14+ Level ★
Worksheet 2****1. Porridge**

5% of the porridge mixture is wheat bran
rich.maths.org/5032/solution

2. Test Scores

Alex got 19 marks
rich.maths.org/11620/solution

3. Tennis Club

The ratio of boys to girls is 3:1
rich.maths.org/4738/solution

4. Baby Boom

C showed the largest percentage increase
rich.maths.org/2498/solution

5. Pied Piper

He caught 3736 rats
rich.maths.org/5011/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 14+ Level ★★
Worksheet 1****1. 2011 Digits**

They add to 9046

rich.maths.org/10106/solution

2. Recurring Mean

The mean is $1\frac{2}{3}$ (or $1.\dot{6}$)

rich.maths.org/5702/solution

3. Pineapple Juice

30% of the orange drink was juice

rich.maths.org/13675/solution

4. Bargain

The total reduction was 57.5% of the original price

rich.maths.org/9768/solution

5. Washing-up

$\frac{1}{2}$ of customers now buy Kleenz

rich.maths.org/11655/solution

6. Fractions of 1000

100

rich.maths.org/7145/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 14+ Level ★★
Worksheet 2****1. Solitaire**

I need to play 10 extra games

rich.maths.org/10141/solution

2. Breakfast Time

$\frac{81}{256}$ of the porridge is left

rich.maths.org/11675/solution

3. Percentage of a Quarter

80%

rich.maths.org/11729/solution

4. Percentage Swap

2007

rich.maths.org/5700/solution

5. Itchy's Fleas

At least 990 000 fleas will be removed

rich.maths.org/11695/solution

6. Coal Truck

75% of the total mass is coal

rich.maths.org/13642/solution

7. Percentage Unchanged

The width is decreased by $9\frac{1}{11}\%$ (or $9.\dot{0}\dot{9}\%$)

rich.maths.org/515/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.

**Age 14+ Level ★★★
Worksheet 1****1. Squeezed In**

$x = 92$

rich.maths.org/11701/solution

2. Elephants and Geese

81 wild geese

rich.maths.org/12927/solution

3. Antiques Roadshow

2 999 900% profit is approximately 3 000 000% profit

rich.maths.org/5704/solution

4. Producing an Integer

It is an integer when n is odd

rich.maths.org/2216/solution

5. The Property Market

Overall he made a loss of £21000

rich.maths.org/13029/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.