



Fractions, Decimals and Percentages

Age 11+ Level ★ Worksheet 1

1. Farthest Fraction

Which is the largest of these fractions?

a) $\frac{7}{15}$

b) $\frac{4}{9}$

c) $\frac{5}{11}$

2. Smashing Time

Yesterday, Granny had 12 cups and 10 matching saucers, but this morning she dropped a tray holding one third of the cups and half the saucers, breaking all of those on the tray.

How many of her cups are now without saucers?

3. Better Spelling

In Emily's first spelling test, she scored 1 mark out of 5, so she decided to work really hard to improve her scores.

If she scores full marks (5 out of 5) in all her tests after the first, how many more tests does she need to take in order to increase her average to more than 80%?

4. Bouncing Ball

A ball is dropped from a height of 125 cm. Each time it hits the ground, it bounces to $\frac{3}{5}$ of the height from which it fell.

How high does it bounce after hitting the ground the third time?

5. Multiplication Magic Square

In this *Multiplication Magic Square*, the **product** of the three numbers in each row, column and diagonal is 1.

What is the value of $r + s$?

p	q	r
s	1	t
u	4	$\frac{1}{8}$

6. Percentage Mad

What is 20% of 30% of 40% of £50?

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



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Age 11+ Level ★ Worksheet 2

1. Tommy's Tankard

Tommy's tankard holds 480ml when it is one quarter empty.
How much does it hold when it is one quarter full?

2. Ordering Fractions

List the following fractions in increasing order:

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

3. Talulah's Tulips

Talulah plants 60 tulip bulbs. When they flower, she notes the following:

- Half the tulips are yellow
- One third of those which are not yellow are red
- One quarter of those which are neither red nor yellow are pink
- The remainder are white

What fraction of the tulips are white?

4. Valuable Percentages

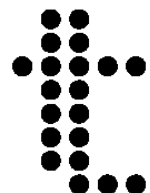
Which of the following has the greatest value?

- a) 50% of 10 b) 40% of 20 c) 30% of 30
d) 20% of 40 e) 10% of 50

5. Information Display

The information display on a train shows letters by illuminating dots in a rectangular 5 x 8 array.

In the letter 't' shown, what fraction of the dots in the array is illuminated?



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