

## Worked answers to 11 Plus standard worded problems for top set year six children

1/ The combined age of Andrew and Brad is forty three.

The combined age of Andrew and Charles is fifty five.

The combined age of Charles and Brad is sixty six.

a) What is the combined age of Andrew, Brad and Charles?

Andrew = A

Brad = B

Charles = C

We do not know how old each of the men are individually, but we know that each man's name comes up twice in our information.

Each of their ages is also used twice.

$$2A + 2B + 2C = 43 + 55 + 66$$

$$2A + 2B + 2C = 164$$

This is the equivalent of their combined ages multiplied by 2. We should halve the whole equation.

$$A + B + C = 82$$

Their combined age is 82.

b) How old is Andrew?- This needs logic skills and trial and error.

Brad + Charles' age is more than Andrew and Charles' age, so Brad is older than Andrew.

Andrew + Charles' age is more than Andrew + Brad's age, so Charles is older than Brad.

Andrew is younger than Brad, Brad is younger than Charles.

$$\text{Brad} + \text{Andrew} = 43$$

Brad is older than Andrew so let's say Andrew is 21, Brad is 22.

Try this out:  $21 + \text{Charles} = 55$  Charles = 34

Charles + Brad = 66 but  $34 + 22 = 56$  X

Charles and Brad need to be older. Make Andrew younger. Let's say Andrew is 19 and Brad is 24.

Try this out:  $19 + \text{Charles} = 55$  Charles = 36 Charles + Brad = 66 but  $36 + 24 = 60$  X

We are closer but Andrew needs to be younger. Let's say Andrew is 17 and Brad is 26.

Try this out:  $18 + \text{Charles} = 55$  Charles = 38 . Charles + Brad = 66 but  $38 + 26 = 64$  X

We are really close now. We should get it in the next trial. Let's say Andrew is 16 and Brad = 27

Try this out:  $16 + \text{Charles} = 55$  Charles = 39 . Charles + Brad = 66 and  $39 + 27 = 66$

Andrew is 16!

**2/ Sapna makes a fruit salad using bananas, oranges and apples.**

**For every 1 banana, she uses 2 oranges and 3 apples.**

**Sapna uses 24 fruits.**

**How many oranges does she use?**

24 is our total.

What do we divide by?

$1 + 2 + 3 = 6$ . This is the smallest number of fruits that can be in a fruit salad due to the ratio we are given.

$24 \div 6 = 4$ . So in this particular fruit salad there are 4 times the amounts of the minimum ratio.

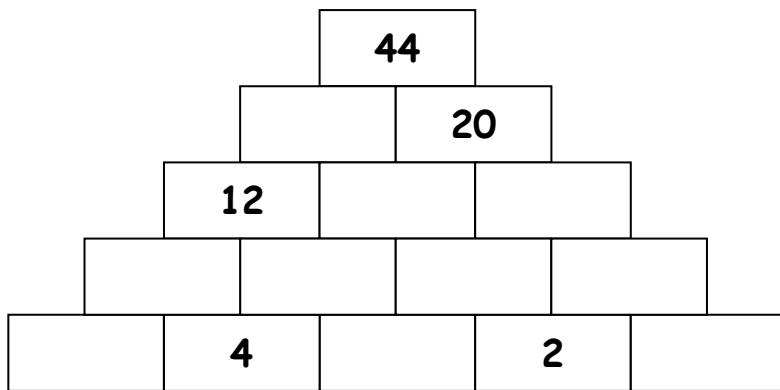
The question asks for the amount of oranges only so we must multiply 4 by the amount of oranges in the minimum ratio.

$2 \times 4 = 8$ . There are 8 oranges in the fruit salad.

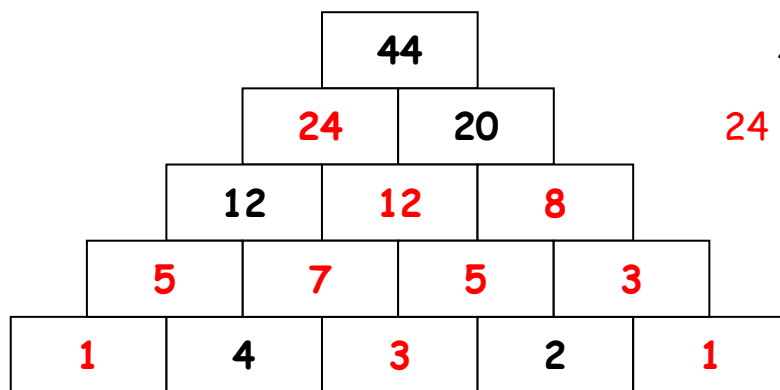
3/ In this pyramid, **each brick contains a number.**

The number on each brick is **found by adding the two bricks below it.**

Fill in the missing numbers on the bricks.



The trick is to start from the top and work downwards.



$$44 - 20 = 24$$

$$24 - 12 = 12 \quad 20 - 12 = 8$$

Now it becomes slightly harder. You need to use your logic and explore the possibilities for the next line down.

The best thing to do is find the different combinations that could add together to produce 12 (two lots of it!) and 8.

What adds to 12? 1 and 11 2 and 10 3 and 9 4 and 8 5 and 7 6 and 6

What adds to 8? 1 and 7 2 and 6 3 and 5 4 and 4

The first brick in the next row down must be 5 or more because it has a 4 below it.

Likewise, the last two bricks must both be 3 or more, because there is a two beneath them.

This now becomes a logical trial and error.

It shouldn't take too long to solve the rest though – there are limited possibilities.