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**PART 1**

1.

We used the guessing system to solve this one. Simply by hazarding a best guess to try land closest to the number 4225.

6 x 6 = 36 so 60 x 60 = 3600.

7 x 7 = 49 so 70 x 70 = 4900

We now know it is above 60 and below 70.

Next guess is the halfway point. 6.5 x 6.5 = 42.25 so 65 x 65 = 4,225

So next guess was 66 because 65 is very close. HUZZAH it’s correct 66 x 66 = **4356**

For the next number we used the same method.

90 x 90 = 8100 it was just higher

95 x 95 = 9025 too high

92 x 92 = **8464** CORRECT!

2.

4 x abcd = dcba

4 x 3 = 12 so “a” can only be 1 or 2 so if 1bcd can be dcb1 when reversed if “a” is 1 “d” 4 which doesn’t work so “a” must be 2

“d” must be 8 for because 4 x 8 is 32 leaving the last number 2.

8bc2 = 2cb8

To get “b” x 4+3 = “c” we started with 1 to get c

4 x 8 leaves a remainder of 3 for the tens

1 x 4 +3 =7

If “c” is 7, then the number would be 2178 and this x 4 is 8712 which is correct as

8 x 4 = 32

7 x 4 = 28 + 3 = 31

1 x 4 = 4 + 3 = 7

2 x 4 = 8 **ANS = 2178**

3.

For this we started by getting a number that divided by both 3 and 5. The first number that divides by both is 15 and continues in the order 15, 30, 45 etc….. So for 7 to work in we subtracted 3 from each number divisible by both 3 and 5. The first number that worked was 42 so we added 5 back on to get the answer = **47**

4.

To start we squared all the number between 11 and 30 because of the age of the men. We took out any number that had a repeating digit. Starting at number with 1 in them from our remaining answers we started eliminating through trial and error.

70 – 13 = 57 but 30 can’t because it has a 0 in 9, so the only numbers left are 28 and 29 but 29 also has a 1 so it can’t be 29.

70 – 14 = 56 but again 30 and 29 won’t work so the only number left to make 70 is 28 and 28 but this won’t work because then you have repeating numbers.

70 – 19 = 51 again 30 and 29 won’t work so we took 28 as the next number and this left 23 as the last one. 19 18 and 23 give the digits 361 784 and 529 and so they contain all the digits 1-9 and so these are the brothers ages so

**Bob -28 Phil – 23 Chris – 19**

**PART 2**

1.

2.

3.

4.

**PART 3**

1. First we took the number \_679\_ is divisible by 72 and all the turkeys cost the same. If it is divisible by 72 it is also divisible by 8 and 9. 9 x 8 = 72.

The 7 in the visible number represents the hundred unit and because this is an odd number it means the number ends in a multiple of 4 which means the last unit is 2

\_6792

next step was that the sum of all the numbers in \_6792 was a multiple of 9.   
  
6 + 7 + 9 + 2 = 24 + **3** = 27 / 9 = 3

Knowing 27 is a multiple of 9 we added 3 to get our answer

**36792 or 367.92 / 72 (turkeys) = €5.11 per turkey**