

Name & Surname: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_

Grade 6 & 7 2021 # 33 Hand in by Thurs 11 Nov

3 more problems

1. The 4-digit number, 5KK1, is divisible by 3. How many digits could K represent?

The digits must add to a multiple of 3:

$5+K+K+1=2k+6$

Thus, $2k$ must be a multiple of 3, which means $K=0, K=3, K=6 or K=9$

ie, K could represent 4 digits

2. Find the five-digit number using the clues below:

* There are no zeros and no digit is repeated
* The first digit is a prime number.
* The third digit is double the first digit.
* The fourth digit is the third digit plus three.
* The fifth digit is the difference between the first digit and the fourth digit.
* The second digit is equal to the fifth digit minus the first digit.

$23475$

3. It takes Bill 20 hours to paint a house and it takes George 30 hours to paint a house of the same size. How long would it take if they paint the house together?

In one hour, Bill would paint $\frac{1}{20}$ of the house, and George would paint $\frac{1}{30}$ of the house. Working together, they would paint

$\frac{1}{20}+\frac{1}{30}=\frac{5}{60}=\frac{1}{12}$ in one hour, which means they would take 12 hours to paint the house.