

Answer to Question #85864 – Math – Algebra

Question

Monica has to choose 5 different numbers. She has to multiply some of them by 2 and some by 3 in order to get the smallest number of different results. What is the least number of results she can obtain?

Solution

Monica understands that some results may be equal, and therefore she can group the numbers. She will quickly notice that only two ($n_1 = 2n_2$ or $n_1 = 3n_2$ or $2n_1 = 3n_2$) or three numbers ($n_1 = 2n_2 = 3n_3$) can be in the same group, i. e. can produce the same result. Then she will list all possible groups:

$$1+1+1+1+1$$

$$2+1+1+1$$

$$2+2+1$$

$$3+1+1$$

$$2+3$$

The smallest number of groups is 2, when a pair and a triple is chosen.

Answer:

Two results.