

A decorator can buy pink paint from two manufacturers.

- Paint A is made up from red and white paint in the ratio 1:3
- Paint B is made up from red and white paint in the ratio 1:7

He can mix the paints to produce a different shade of pink.

If Paint A and Paint B come in the same size cans, what is the least number he would need of each type in order to produce pink paint containing red and white in the following ratios?

1:4

1:5

1:6

Another decorator buys pink paint from two different manufacturers:

- Paint C is made up from red and white paint in the ratio 1:4
- Paint D is made up from red and white paint in the ratio 1:9

What is the least number he would need of each type in order to produce pink paint containing red and white in the following ratios?

1:5

1:6

1:7

1:8

For each of the types of paint, did you have a strategy for mixing the new paint colour?

Is it always possible to combine two paints made up in the ratios 1:x and 1:y and turn them into paint made up in the ratio 1:z ? (where $x < z < y$)