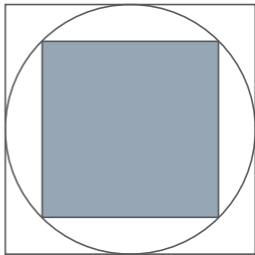




What fraction of the large square is shaded?



I have 3 tins of mushroom soup, 3 tins of baked beans and 3 tins of rice pudding in my cupboard, but the labels have all fallen off. If I pick 3 tins for my lunch, what different combinations of food could I have? (Assume that I will only open the tin just before cooking and eating so I could eat them in any order!)

Extension: I tell my friend about my 9 tins and she brings over three tins of mushy peas, also without labels and we mix them up – how many different meals could I have if I chose three tins from the 12?

What is the pattern for any number of tins?



➤ A farmer has 240m of fencing and wants to create an enclosed area for his sheep. What is the biggest area that he can fence off?



I have a present to wrap for my friend. It comes in a cubic box which has side of length 30 cm. How long a piece of wrapping paper will I need to cut from the roll?



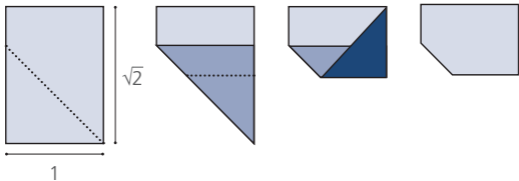
➤ Six friends go on holiday and share twin rooms. Anne doesn't want to share with Betty; Catherine doesn't want to share with Anne or Dianne; Dianne and Elizabeth don't want to share; and Frances won't share with Catherine or Betty.

How could they work out where they will sleep?

How many different sleeping arrangements are there?



An A4 sheet of paper has side lengths in the ratio $1:\sqrt{2}$. If the shorter side is said to have length 1 and paper is folded as shown in the diagram, what is the perimeter of the resulting pentagon?





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