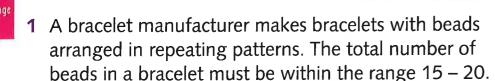
Building and jewellery ratios

Solve missing value ratio problems using multiplication and division



Using × and ○ to represent two types of beads, draw two possible bracelet designs with the following ratios:



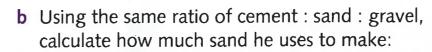
b 3:1

- 2 A builder has laid some patios using cream and grey coloured slabs. The ratio of cream to grey slabs in the designs is 2 : 3. Calculate the number of grey slabs and the total number of slabs for designs with:
 - a 8 cream slabs
- b 20 cream slabs
- c 36 cream slabs
- 1 A necklace manufacturer makes necklaces with beads arranged in repeating patterns. The total number of beads in a necklace must be within the range 40 60.
 - a Using × and to represent two types of beads, draw two possible necklace designs with the ratio 2 : 3.
 - **b** List the exact number of beads that can be used to make necklaces for each of the ratios below.
 - i 3:5

ii 2:5

iii 1:8

- 2 A builder has to make concrete for a number of jobs.
 - a Calculate how much sand and gravel he will need for each job if the ratio of cement: sand: gravel is 1:2:4.
 - i To concrete in a bird table, he uses 3 buckets of cement.
- ii To concrete in a garden seat, he uses 4 bags of cement.
- iii To make a garden path, he uses 8 full wheelbarrows of cement.



i 14 full buckets of concrete to fix a new gate

ii 35 full wheelbarrows of concrete to lay a base for a conservatory.

- 3 A new town has permission to build homes in the following proportions:
 - 10% are large detached houses (D)
 - 20% are town houses (T)
 - 30% are semi-detached houses (S)
 - 40% are apartments (A)



- a In Phase 1 of the building, there are 400 homes. Calculate how many of each type there are.
- **b** In Phase 2 of the building, there are 100 town houses. How many homes are there in Phase 2?
- c At the end of Phase 3, there are 380 town houses in total (Phases 1, 2 and 3). Calculate how many homes there are in the new town altogether.
- 1 A necklace manufacturer makes necklaces with three different beads arranged in repeating patterns. The total number of beads in a necklace must be within the range 50 80.
 - a Using \times , \bigcirc and \square to represent the beads, draw two possible necklace designs with the ratio 1 : 2 : 3.
 - **b** List the exact number of beads that can be used to make necklaces for each of the ratios below.
 - i 1:4:5

ii 3:4:6

iii 4:13:2

- 2 A builder has laid some patios using three sizes of slabs. The ratio of small: medium: large slabs in the designs is 3:5:1. Calculate the number of each size of slabs for designs with:
 - a 18 small slabs
- **b** 25 medium slabs
- c 90 slabs



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