

# Factors and Multiples

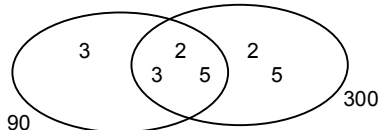
- Don't use a calculator
  - Answer these questions on separate paper
  - Use a 'systematic' layout for finding the factors
  - Hand in next week - remember to put your name on your answers :-)
- 1) Find all the factors of 76 and arrange them in size order
  - 2) Some numbers (e.g. 25 and 64) have an odd number of factors. What are these numbers called?
  - 3) What is the third multiple of 440?
  - 4) Use a 'common sense' method to find the **lowest common multiple** (LCM) of 12 and 16.
  - 5) Use a 'common sense' method to find the **highest common factor** (HCF) of 16 and 12.
  - 6) What is  $12 \times 16 \div 4$ ? Can you always find the LCM by multiplying the numbers and dividing by the HCF? Try to find an example where this does *not* work!
  - 7) Find the prime factors of 90 and 300
  - 8) Use the Venn diagram method to find the HCF and the LCM of 90 and 300
  - 9) Use prime factors and the Venn diagram to find the HCF and LCM of 790 and 630
  - 10) Cancel down  $\frac{28}{42}$  to its lowest terms
  - 11) Find the missing number in these fractions  $\frac{12}{16} = \frac{?}{4}$
  - 12) Cancel down  $\frac{170}{357}$ . Hint: use prime factors of the numbers to find the LCM then divide each by the LCM.
  - 13) Write this sequence of fractions with all the missing numbers...

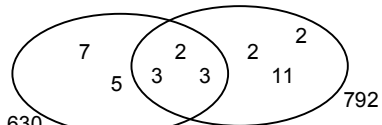
$$\frac{3}{?} = \frac{?}{8} = \frac{24}{?} = \frac{36}{?} = \frac{15}{20}$$

# Answers

- Suggested marks shown as M1, A1 and so on, total is 28 marks
- Q6 - any sensible answer or attempt to write a sentence is worth praise!
- Q9 completely correct is evidence of criterion

- 1) 1, 2, 4, 19, 38, 76 (A1 for factors A1 for order)
- 2) Square numbers - the square root repeats in the factor list (A1)
- 3) 1320 (also called the second overtone of middle C) A1
- 4) 48, most will do this by writing out multiples, to be encouraged A1
- 5) 4, many will just see the answer, A1
- 6) 48, counter-examples will be interesting to see, A1
- 7)  $90 = 2 \times 3^2 \times 5$        $300 = 2^2 \times 3 \times 5^2$       M1A1, M1A1

- 8)   
 $HCF = 2 \times 3 \times 5$ ,       $LCM = 3 \times 2 \times 3 \times 5 \times 2 \times 5$   
M1 for Venn Diag, M1 A1 for HCF, M1 A1 for LCM

- 9)   
 $HCF = 18$ ,  $LCM = 27,720$   
M1 for Venn Diag, M1 A1 for HCF, M1 A1 for LCM

10)  $\frac{28}{42} = \frac{2}{3}$  A1      11)  $\frac{12}{16} = \frac{3}{4}$  A1      12)  $\frac{170}{357} = \frac{10}{21}$  A1

13)  $\frac{3}{4} = \frac{6}{8} = \frac{24}{32} = \frac{36}{48} = \frac{15}{20}$       A4, one each