

Essential knowledge:

1. Use the Euclidean algorithm to find the greatest common divisor of:
(a) 679 and 388 (b) 174 and 319 (c) 3066 and 713
2. Which pair of values in question 1 are co-prime?
3. Use the Euclidean algorithm to find integers x and y such that
$$149x + 139y = 1$$
4. Convert 238_9 to base 10.
5. Convert 59 to base 3.

Unit level:

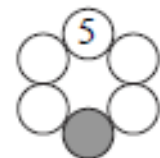
6. Use the Euclidean algorithm to obtain the greatest common divisor of 1448 and 328

Assessment level:

7. Use the Euclidean algorithm to show that $(231, 17) = 1$.
8. Use the Euclidean algorithm to obtain the greatest common divisor of 1204 and 833, expressing it in the form $1204a + 833b$, where a and b are integers.
9. Change 712_8 to base 5.

Challenge Questions (optional)

1. The numbers 5, 6, 7, 8, 9, 10 are to be placed in the diagram, so that the sum of the numbers in each pair of touching circles is a prime number. The number 5 is placed in the top circle. What number is placed in the shaded circle?



- A** 6 **B** 7 **C** 8 **D** 9 **E** 10

2. The number 3 can be expressed as the sum of one or more positive integers in four different ways:

$$3; \quad 1+2; \quad 2+1; \quad 1+1+1$$

In how many ways can the number 5 be so expressed?

- A** 8 **B** 10 **C** 12 **D** 14 **E** 16