

Remainder

EXAMPLES

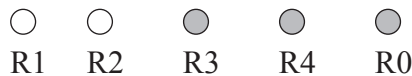
- 1 Beads are strung on a string in a pattern of two white beads followed by three grey beads, and so on, as shown below.



What is the colour of the 37th bead?

What is the colour of the 49th bead?

Solution: We need only to consider a block of 5 beads since its pattern repeats after every 5 beads.



$$37 \div 5 = 7 \text{ R } 2$$

The colour of the 37th bead is **white**.

$$49 \div 5 = 9 \text{ R } 4$$

The colour of the 49th bead is **grey**.

- 2 Many years ago, the first day in the month of January was a Sunday. On which day of the week was 25th of January in that year?

Solution: There are 7 days in a week.

$$25 \div 7 = 3 \text{ R } 4$$

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| R1 | R2 | R3 | R4 | R5 | R6 | R0 |

Therefore, 25th of January in that year was a **Wednesday**.

PRACTICE

1 ○ ○ △ △ △ □ ○ ○ △ △ △ □ ○ ○ △ △ △ □ …

What is the shape of the 38th figure?

What is the shape of the 59th figure?

2 The numbers 3, 4, 5 and 6 are written in the pattern below.

3 6 4 5 3 6 4 5 3 6 4 5 …

What is the digit of the 35th number?

What is the sum of the first 18 numbers?

3 Many years ago, 1st of July was on a Monday. On which day of the week was 25th of July in that year?

Adapted:

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Solutions to:

Remainder

1. The pattern repeats after every 6 shapes.

$$38 \div 6 = 6 \text{ R } 2$$

○ ○ △ △ △ □
R1 R2 R3 R4 R5 R0

The shape of the 38th figure is a ○.

$$59 \div 6 = 9 \text{ R } 5$$

The shape of the 59th figure is a △.

2. $35 \div 4 = 8 \text{ R } 3$

3 6 4 5
R1 R2 R3 R0

The 35th number is 4.

$$3 + 6 + 4 + 5 = 18$$

$18 \div 4 = 4$ blocks of 18 + the first 2 numbers

$$(4 \times 18) + 3 + 6 = 72 + 9 = 81$$

The sum of the first 18 numbers is **81**.

3. $25 \div 7 = 3 \text{ R } 4$

Sun Mon Tue Wed Thu Fri Sat
R0 R1 R2 R3 R4 R5 R6

25th of July in that year was on a **Thursday**.

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