

Fifteen Cards

Let the seven cards be named a, b, c, d, e, f, g

Conditions:

① $1 \leq a, b, c, d, e, f, g \leq 15$

② $a \neq b \neq c \neq d \neq e \neq f \neq g$

③ $a + b = 15$

$b + c = 20$

$c + d = 23$

$d + e = 16$

$e + f = 18$

$f + g = 21$

\therefore there are no repeats

$b = 15 - a$

$c = 20 - b = a + 5$

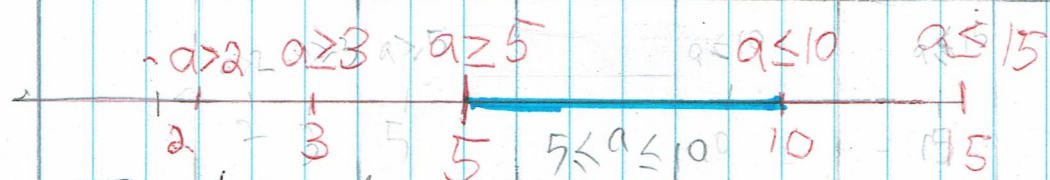
$d = 23 - c = 18 - a$

$e = 16 - d = a - 2$

$f = 18 - e = 20 - a$

$g = 21 - f = a + 1$

| | a | b | c | d | e | f | g |
|-----------------|---|------------------------|----------------------------|------------------------------|----------------------|------------------------------|-----------------------|
| express as a | a | 15-a | a+5 | 18-a | a-2 | 20-a | a+1 |
| | | $15-a > 0$ $a < 15$ | $a+5 \leq 5$ $a \leq 0$ | $18-a \leq 5$ $a \geq 13$ | $a-2 > 0$ $a > 2$ | $20-a \leq 5$ $a \geq 15$ | $a+1 > 0$ $a > -1$ |



Trial and error with $5 \leq a \leq 10$

The solutions that satisfy all of the conditions are highlighted in green on the excel sheet.

6, 9, 11, 12, 4, 14, 7

and

8, 7, 13, 10, 6, 12, 9