

Stage 4

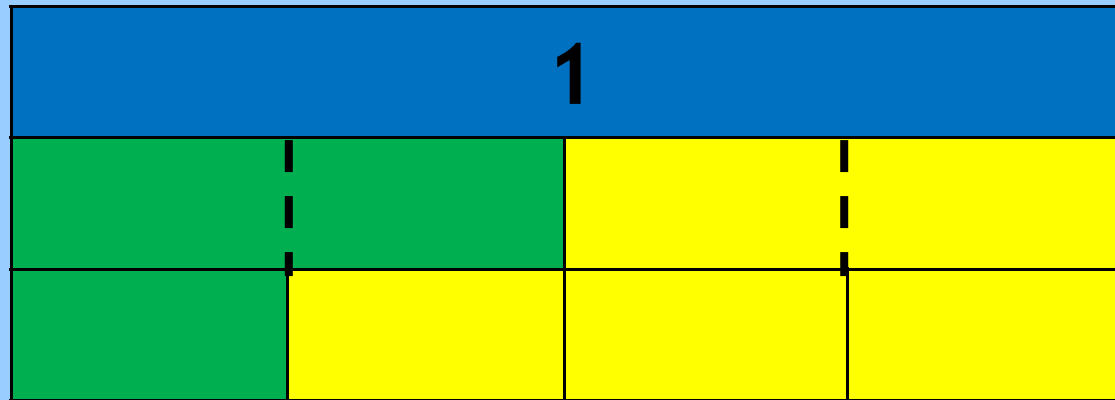


Stage 4 – Fractions

- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions (see Stage 3 progression).

Use Cuisenaire rods to support the children in refreshing their knowledge of equivalent fractions.

Calculate $\frac{1}{2} + \frac{1}{4}$

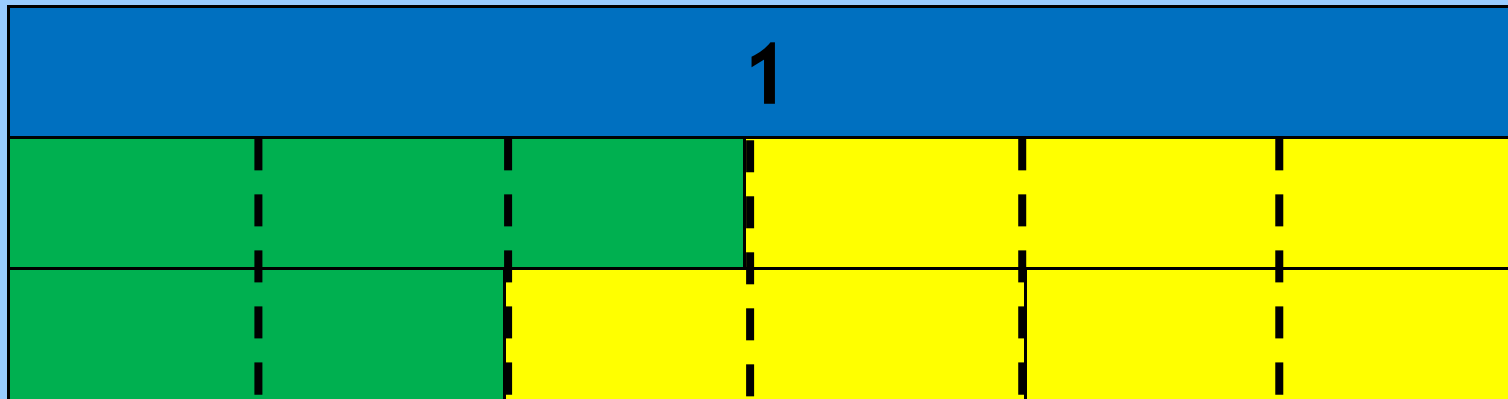


$$\frac{1}{2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4}$$



Stage 4 – Fractions

Calculate $\frac{1}{2} + \frac{1}{3}$



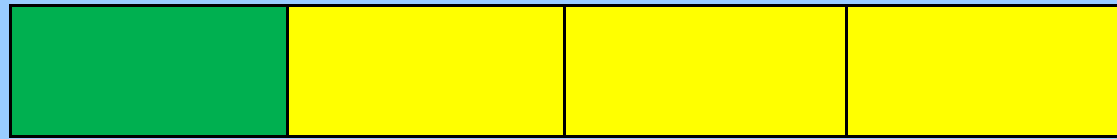
$$\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$



Stage 4 – Fractions

- Multiply simple fractions by a whole number, writing the answer in its simplest form.

Calculate $1 \times \frac{1}{4}$



$$1 \text{ lots of } \frac{1}{4} = \frac{1}{4}$$

Calculate $3 \times \frac{1}{4}$



$$3 \text{ lots of } \frac{1}{4} = \frac{3}{4}$$



Stage 4 – Fractions

Calculate $3 \times \frac{2}{5}$



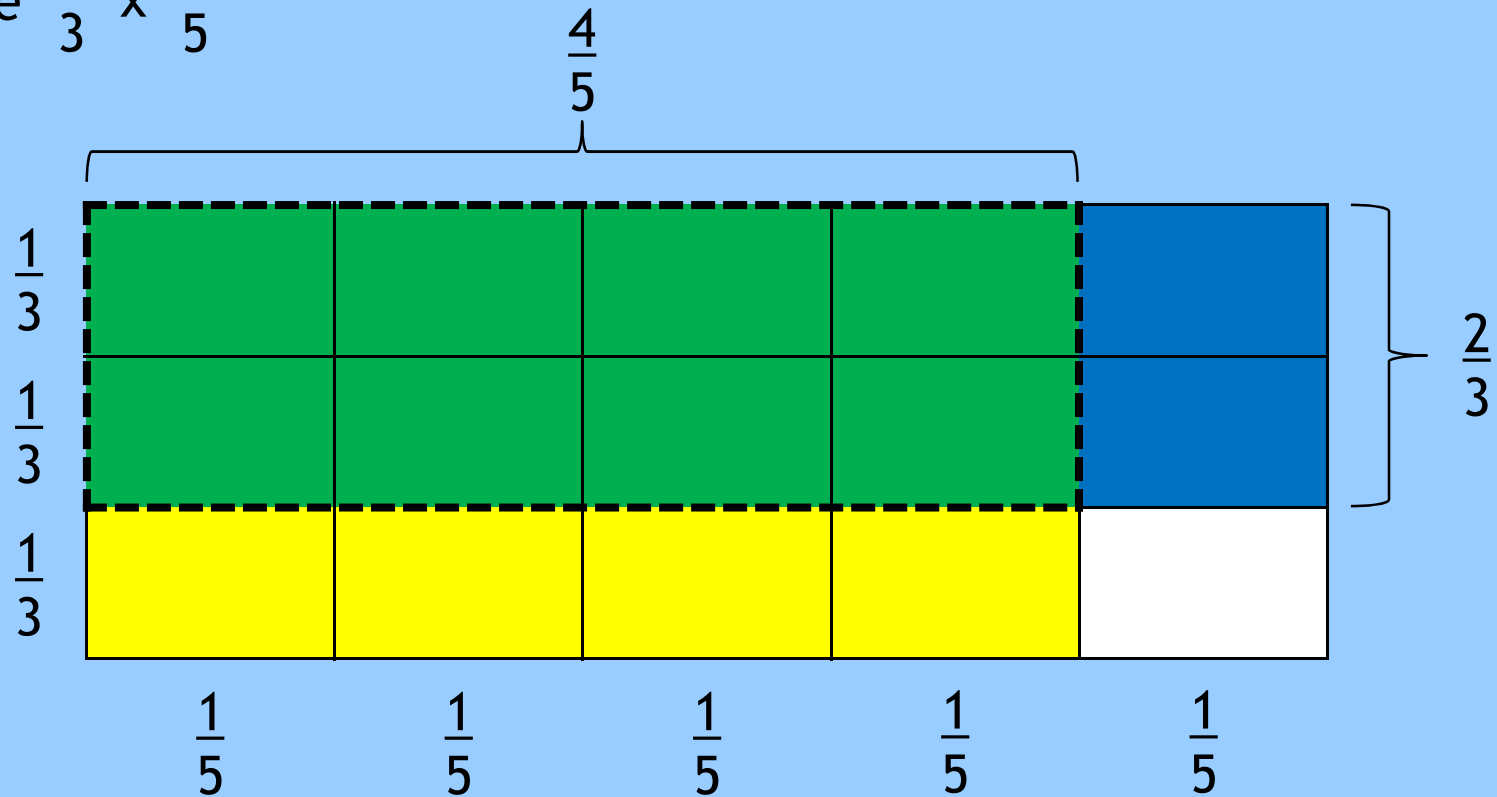
$$3 \times \frac{2}{5} = \frac{6}{5} = 1 \frac{1}{5}$$



Stage 4 – Fractions

- Multiply simple pairs of proper fractions, writing the answer in its simplest form.

Calculate $\frac{2}{3} \times \frac{4}{5}$



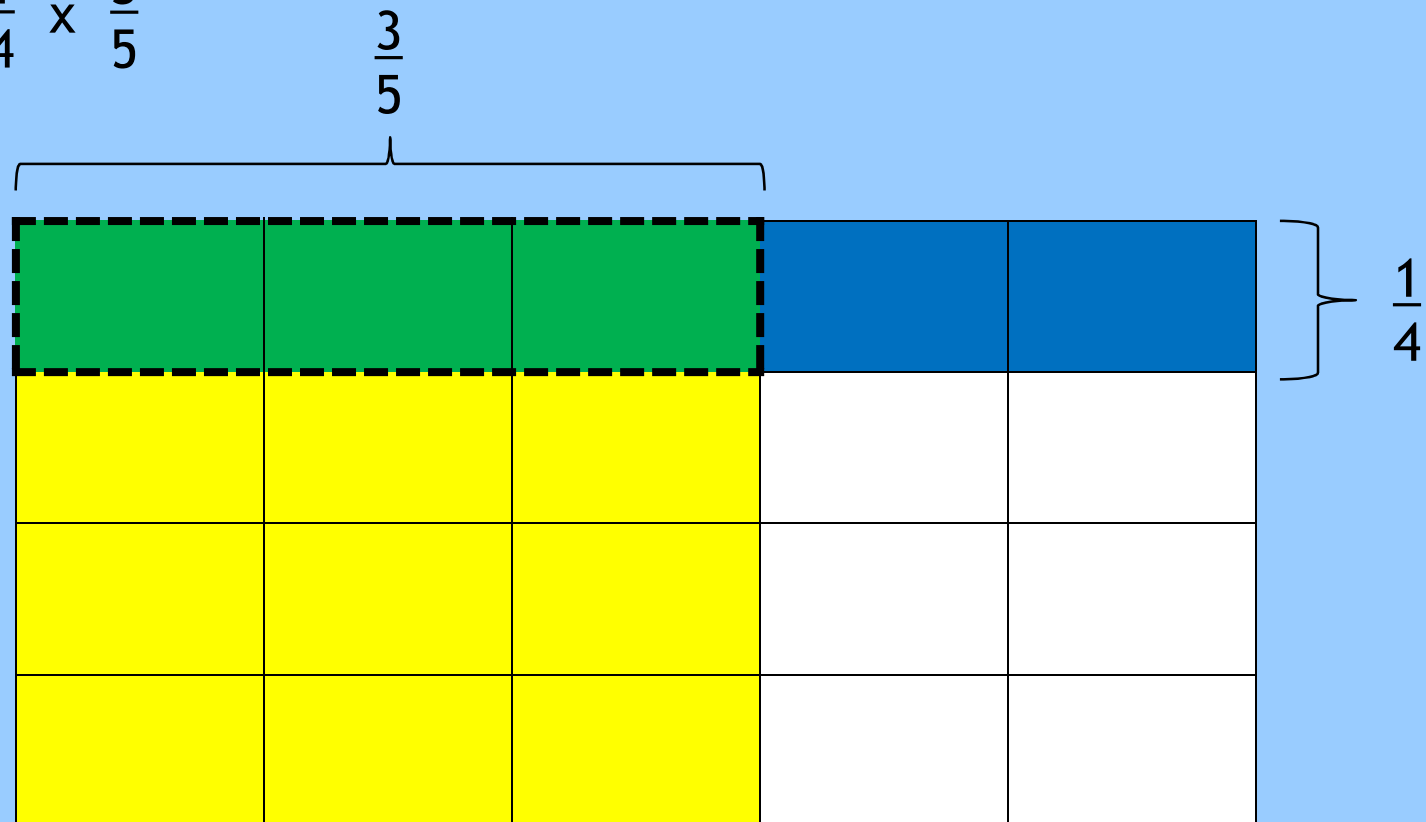
$$\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$$



Stage 4 – Fractions

- Multiply simple pairs of proper fractions, writing the answer in its simplest form.

Calculate $\frac{1}{4} \times \frac{3}{5}$



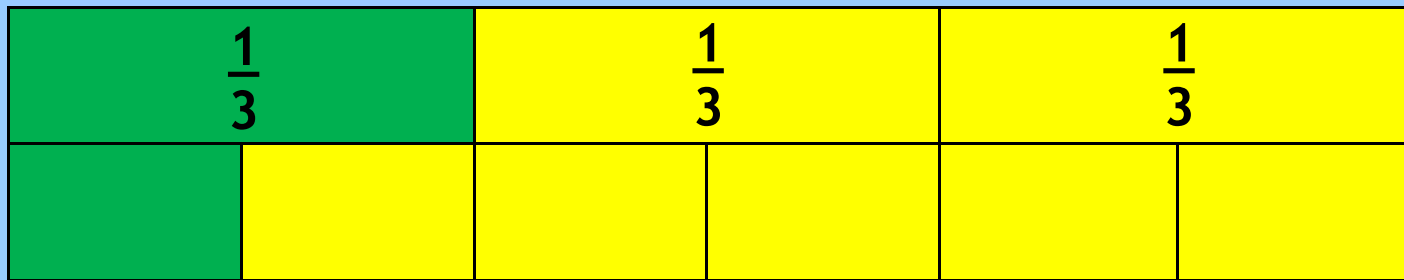
$$\frac{1}{4} \times \frac{3}{5} = \frac{3}{20}$$



Stage 4 – Fractions

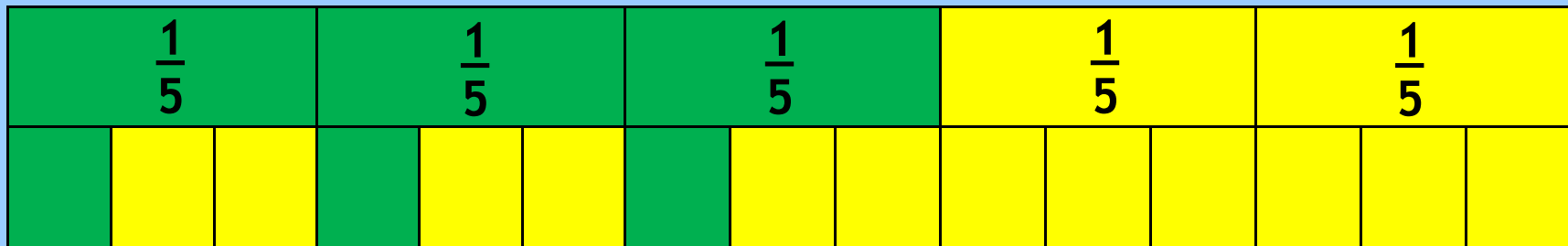
- Divide proper fractions by whole numbers.

Calculate $\frac{1}{3} \div 2$



$$\frac{1}{3} \div 2 = \frac{1}{6}$$

Calculate $\frac{3}{5} \div 3$



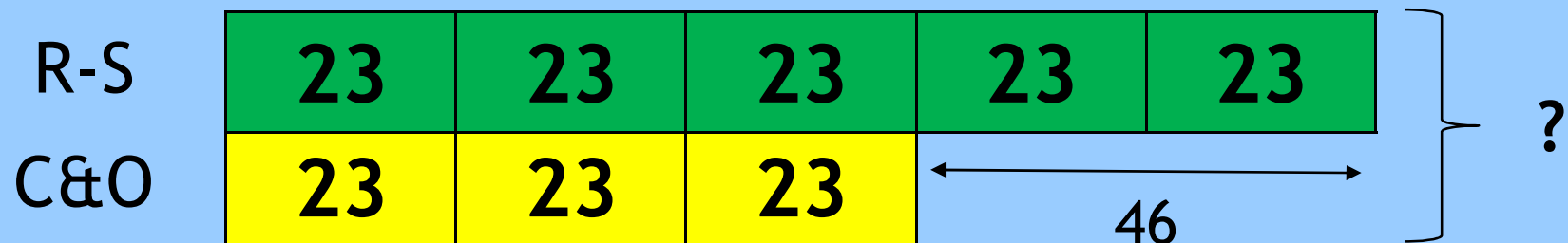
$$\frac{3}{5} \div 3 = \frac{3}{15}$$



Stage 4 – Ratio

- Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples (see Stage 2 progression).

In a survey, the ratio of the number of people who preferred ‘ready-salted’ to ‘cheese and onion’ crisps was 5:3. Forty-six more people preferred ready-salted. How many people took part in the survey?



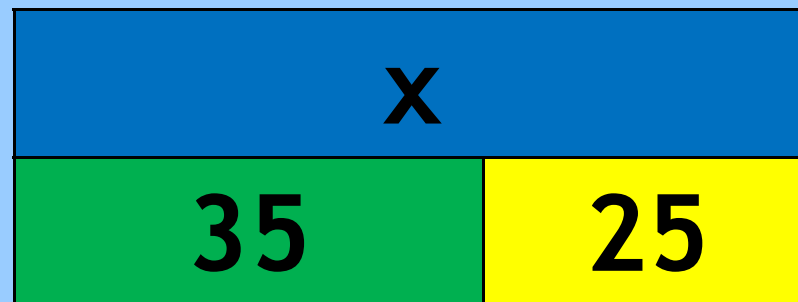
Stage 4 – Algebra

- Express missing number problems algebraically.

$$x + 5 = 20, \text{ so } x = ?$$



$$x = 35 + 25, \text{ so } x = ?$$

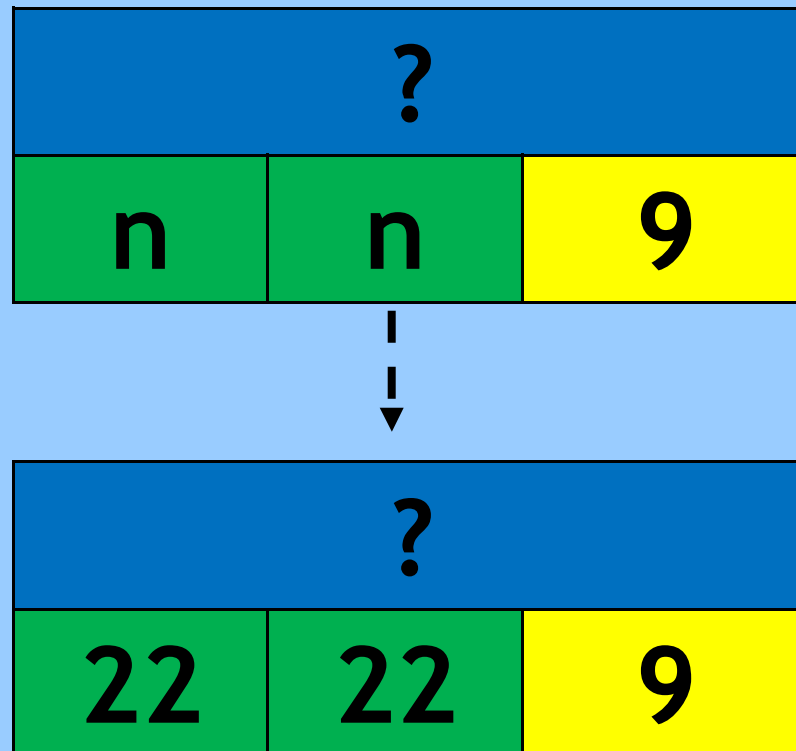


Stage 4 – Algebra

$$6y - 2y = 4y$$

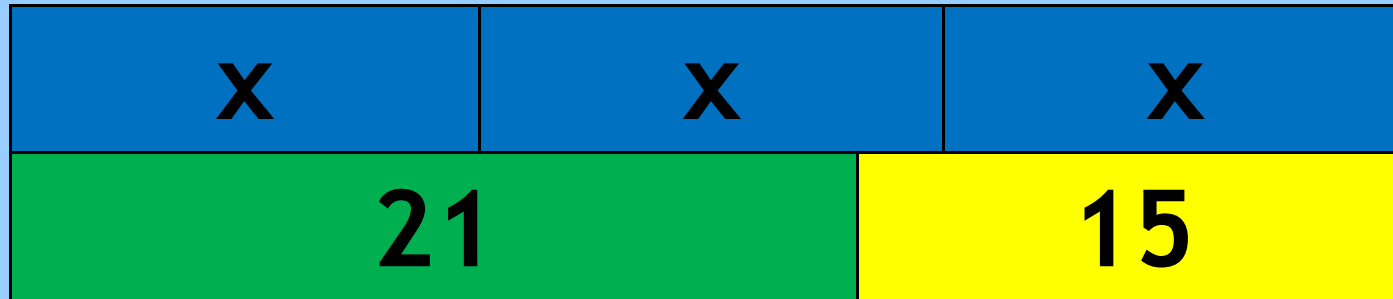


What is $2n + 9$ when $n = 22$?

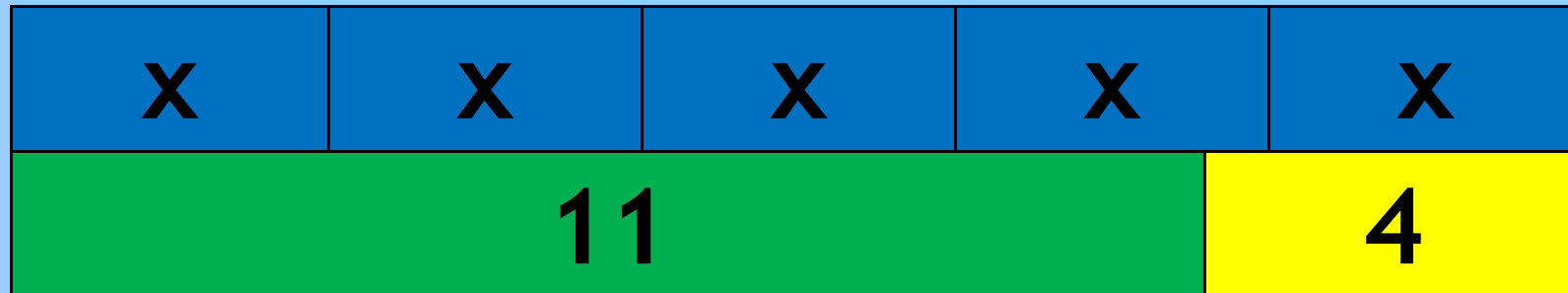


Stage 4 – Algebra

$$3x - 15 = 21$$



$$5x - 4 = 11$$



Stage 4 – Algebra

$$4x + 9 = 29$$

x	x	x	x	9
29				

So, $4x = 20$

↓

x	x	x	x	9
20				9

Therefore, $x = 5$

↓

x	x	x	x	9
5	5	5	5	9



Stage 4 – Advanced Algebra

$$3y + 7 = y + 13$$

y	y	y	7
y	13		

$$2y + 7 = 13$$

↓

y	y	y	7
y	13		

$$2y = 6$$
$$y = 3$$

↓

y	y	7
6		7



Stage 4 – Advanced Algebra

$$3x + 4y = 30$$

x	x	x	y	y	y	y
30						

Using a systematic approach:

If $x = 1$ then $3x = 3$. $30 - 3 = 27$ which is not a multiple of 4.

If $x = 2$ then $3x = 6$. $30 - 6 = 24$. $24 \div 4 = 6$

If $x = 3$ then $3x = 9$. $30 - 9 = 21$ which is not a multiple of 4.

If $x = 4$ then $3x = 12$. $30 - 12 = 18$ which is not a multiple of 4.

etc

