Creating Reasoning Routines, Building Problem-Solvers

Session 2

Reasoning throughout knowledge acquisition

www.iseemaths.com

Y5 & Y6

Routines Within Interactive Teaching

Raising the internal narrative:

Gap between question and response/discussion, silent modelling

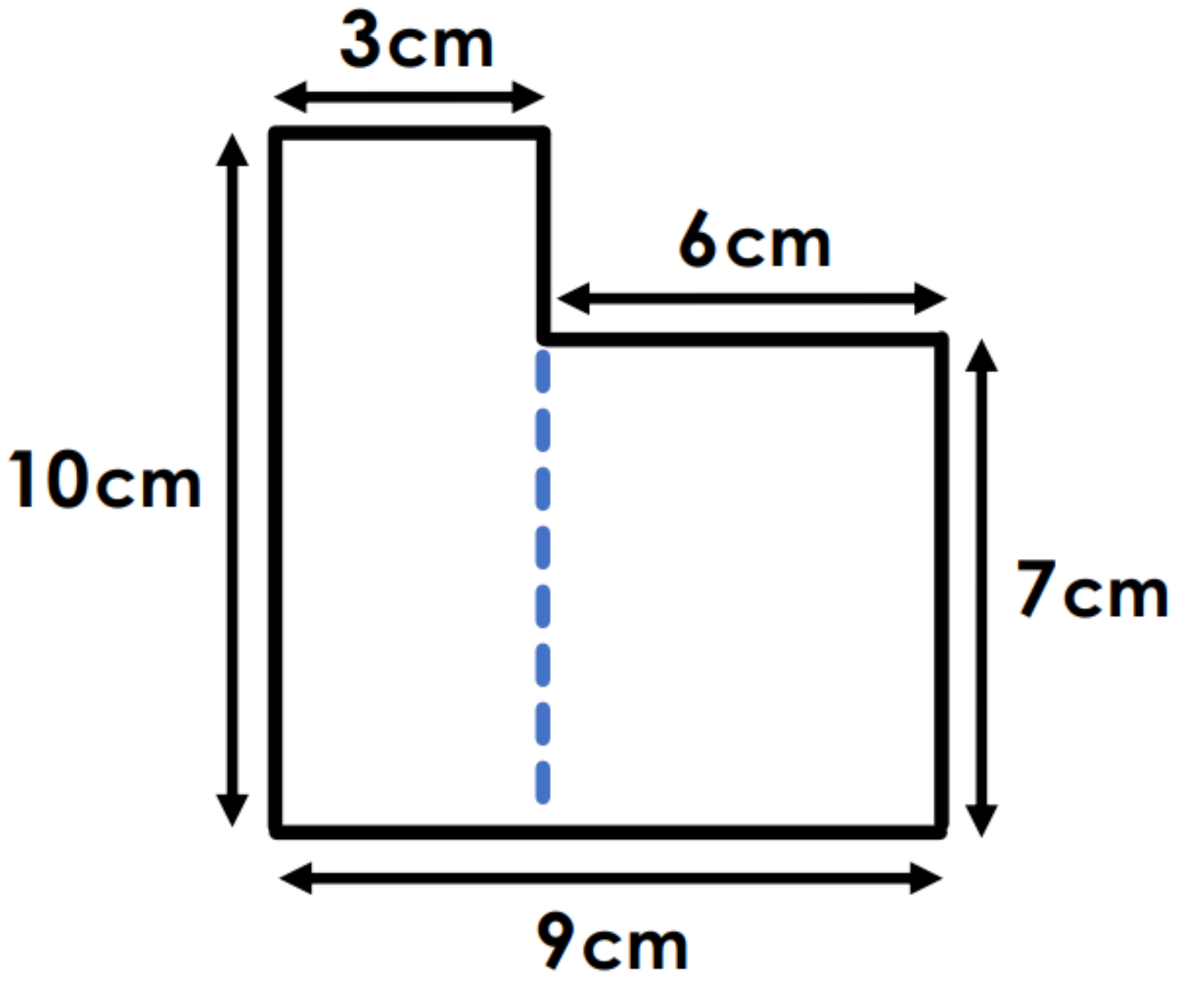
Mass participation:

Form of answer before question, routines

Managing discussions:

Quality modelling + participation, wait time 2

Calculate the area of the shape:



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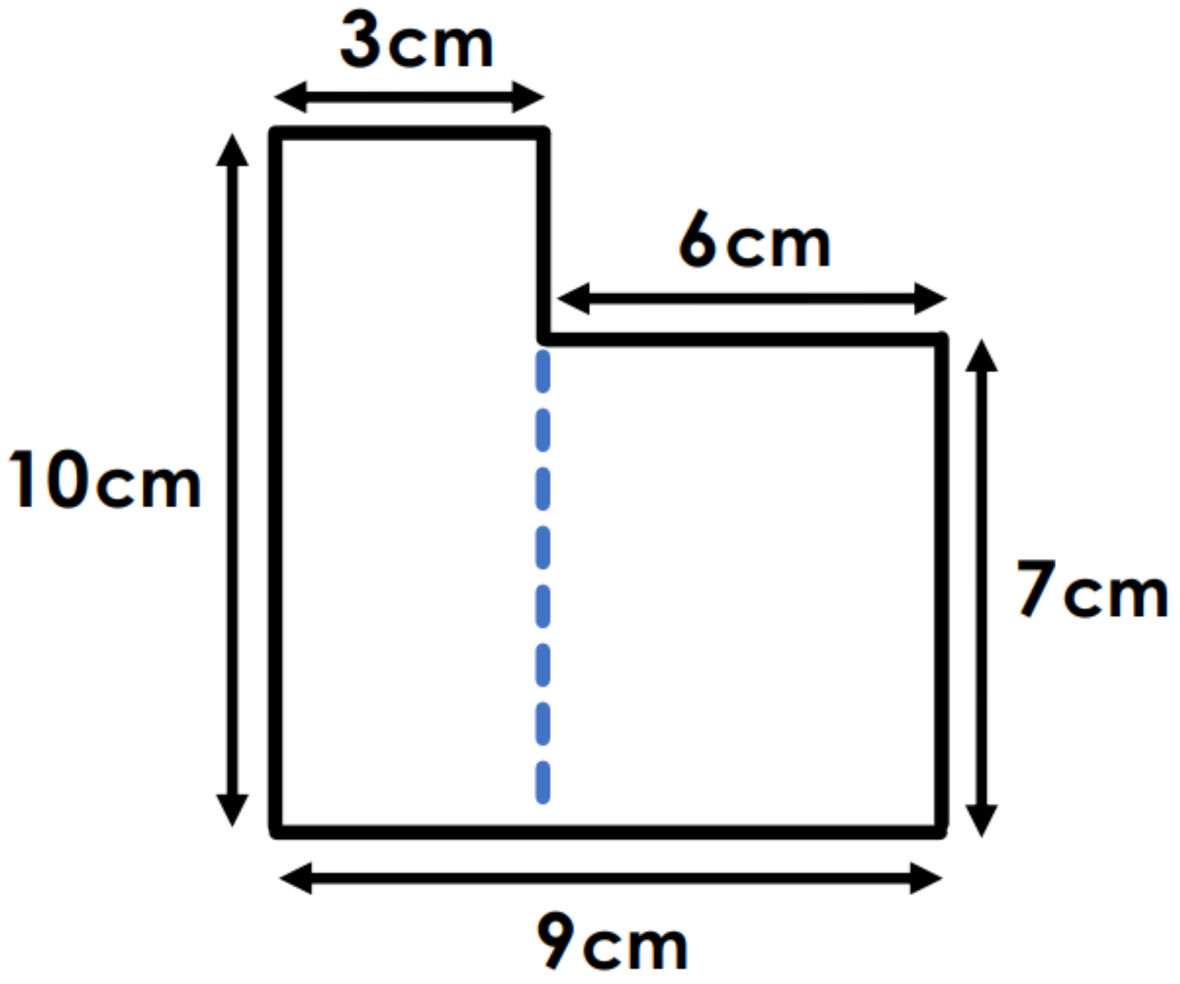
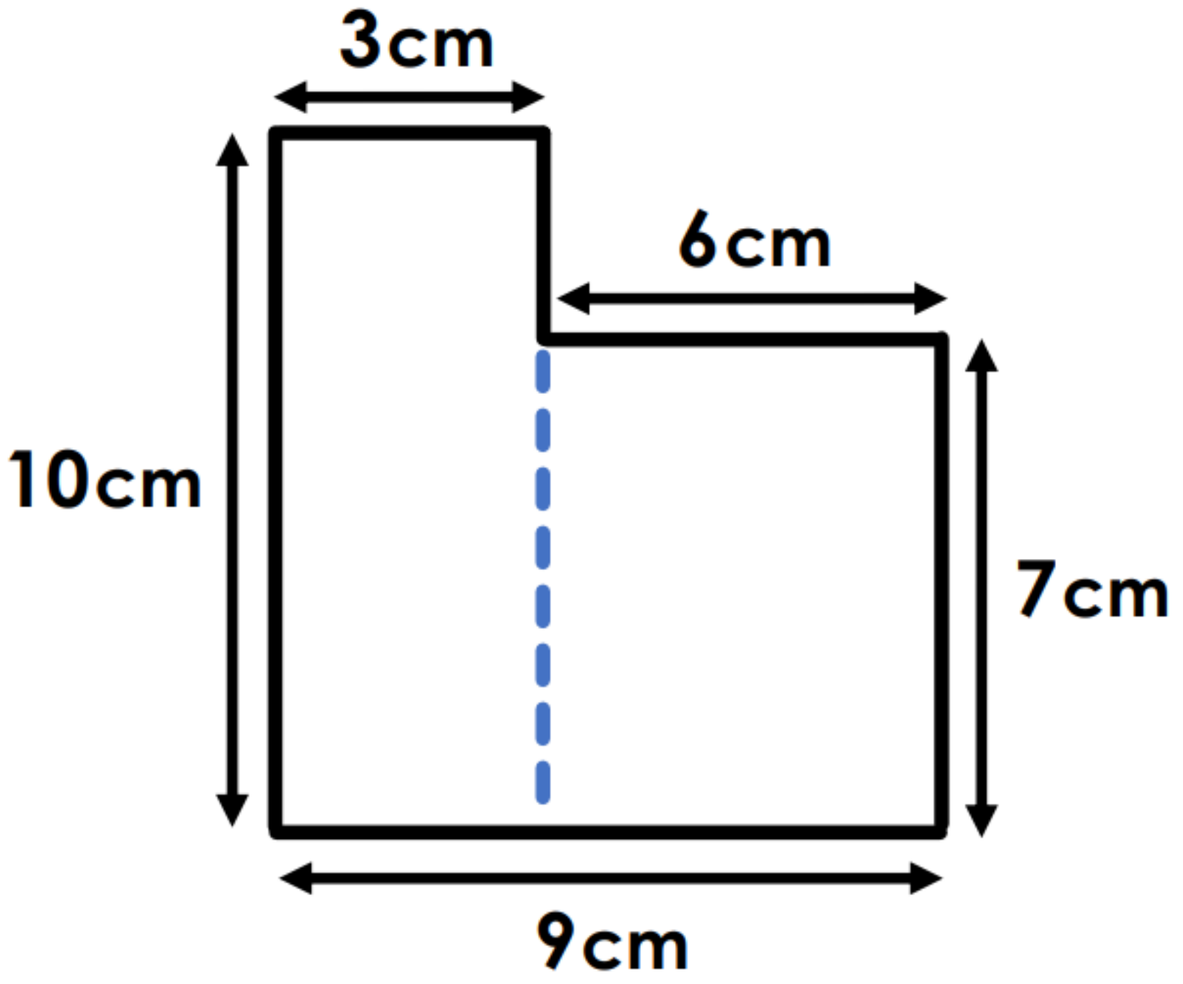


$3\text{cm} \times 10\text{cm} = 30\text{cm}^2$

Calculate the area of the shape:



$3\,cm \times 10\,cm = 30\,cm^2$

$7\,cm \times 9\,cm = 63\,cm^2$

1

$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$ ✓

2

$\frac{4}{16} + \frac{6}{16} = \frac{5}{8}$

$(\frac{2}{8}) + (\frac{3}{8})$ ✓

Interesting

$\frac{1}{2} + \frac{2}{16} = \frac{5}{8}$

$(\frac{4}{8}) + (\frac{1}{8})$ ✓

Non

$\frac{1}{4} + \frac{4}{4} = \frac{5}{8}$ ✗

There are 20 children at the park.

There are 4 times as many girls as boys at the park.

How many boys at the park?

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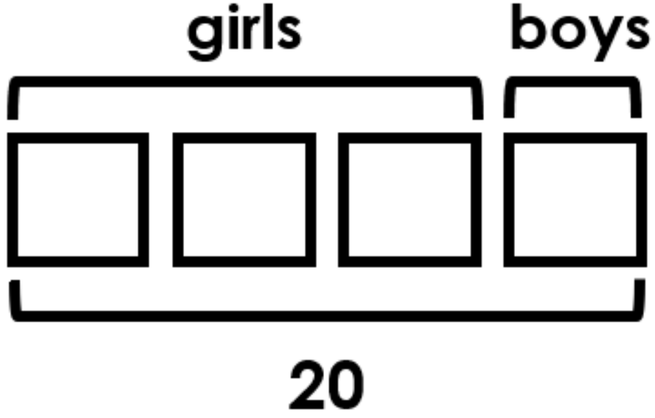
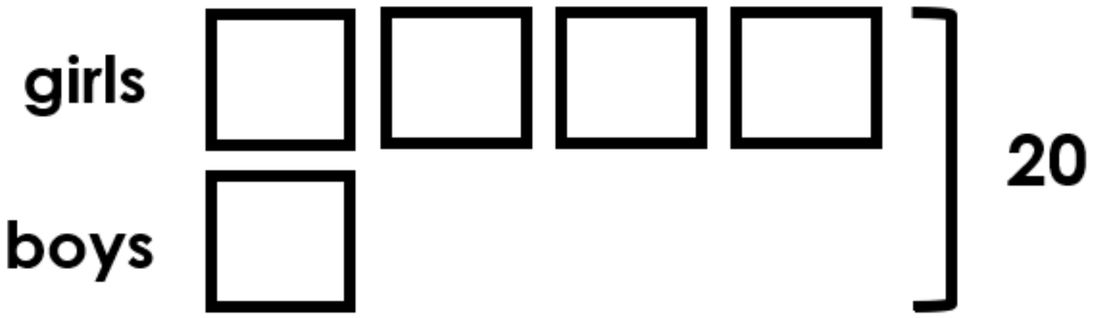
There are 4 times as many girls as boys at the park.

How many boys at the park?



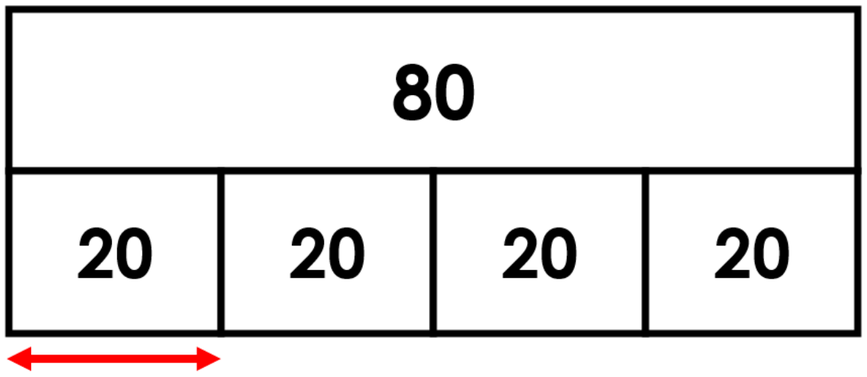


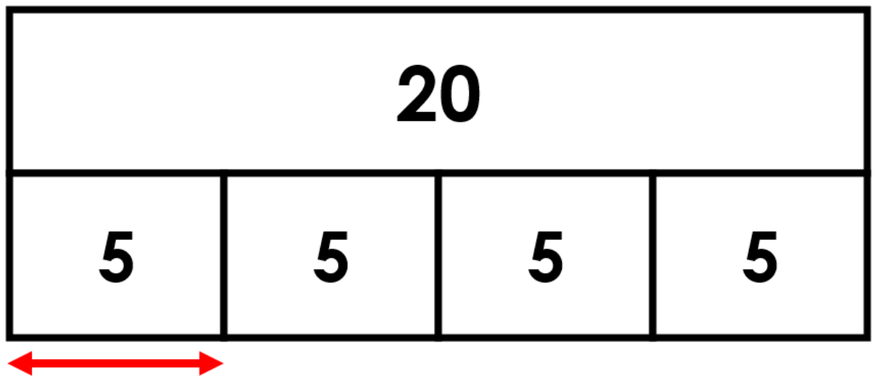
$\frac{1}{4}$ of a number is 20.

What is the number?

$\frac{1}{4}$ of a number is 20.

What is the number?



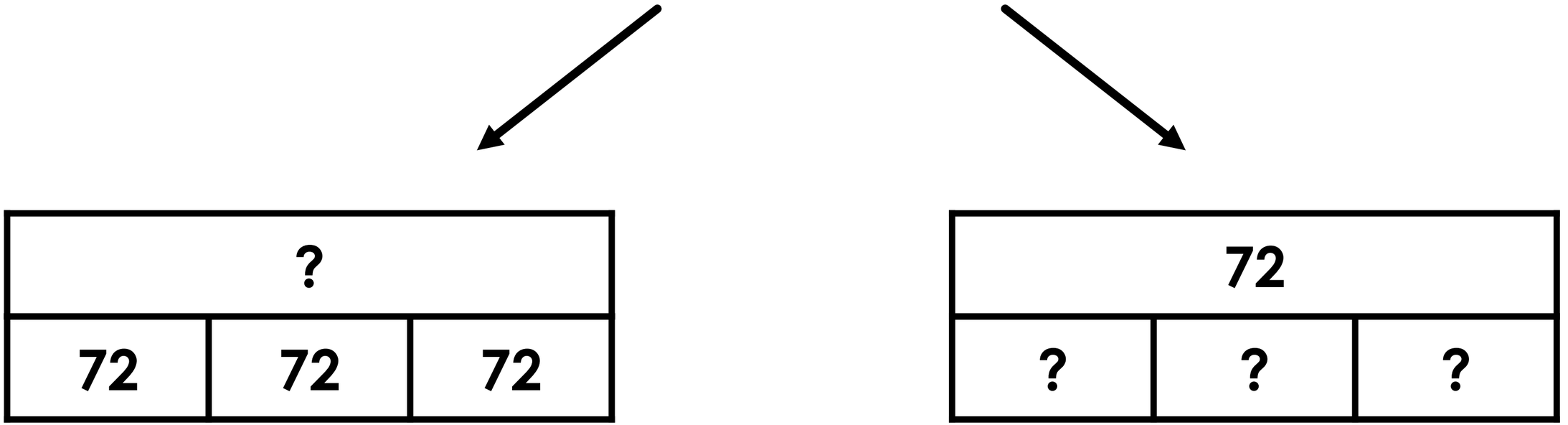


Ken thinks of a number. He divides it by 3.
The answer is 72.

What number was Ken thinking of?

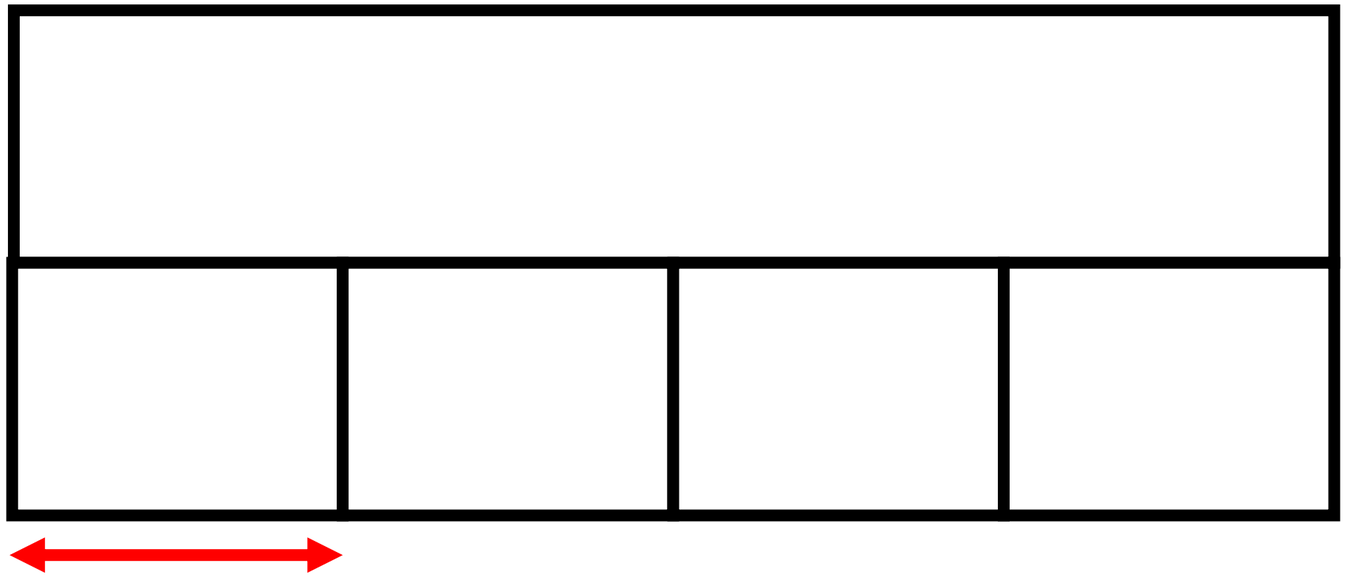
Ken thinks of a number. He divides it by 3.
The answer is 72.

What number was Ken thinking of?

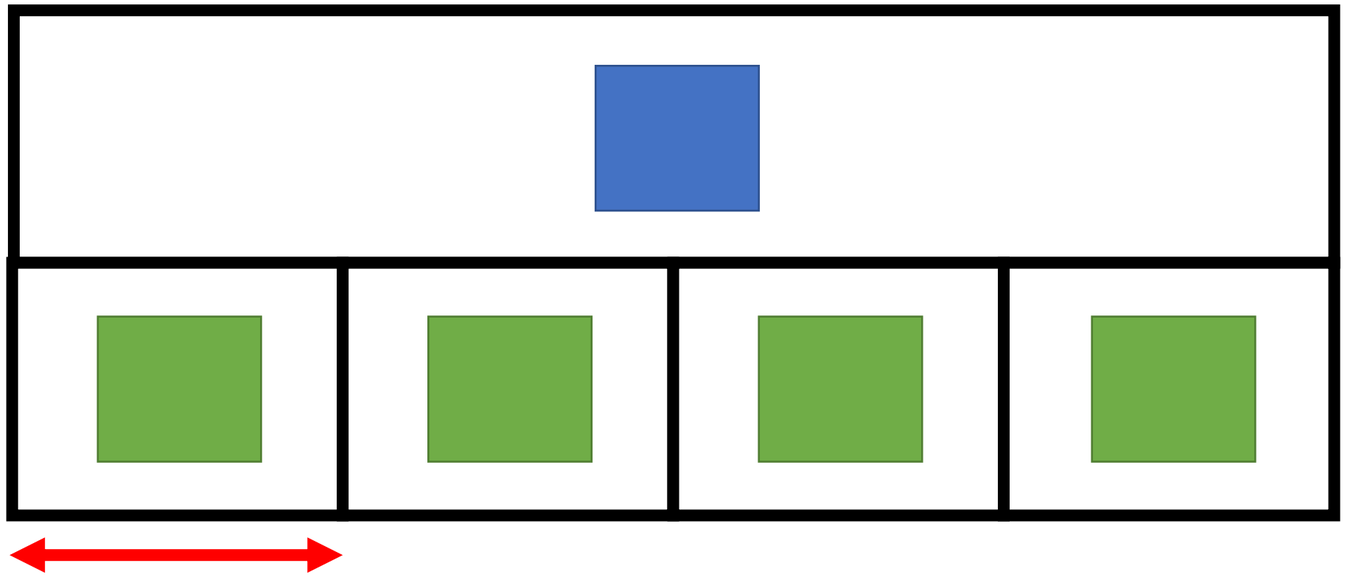


$\frac{1}{4}$ of  = 

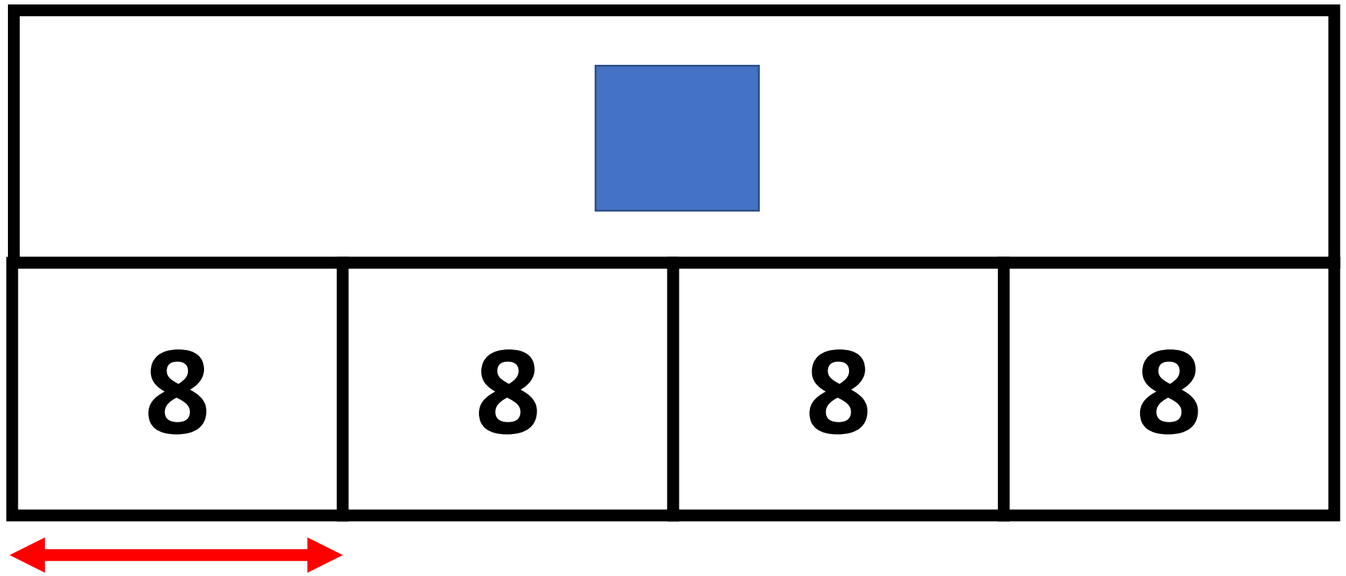
$\frac{1}{4}$ of ■ = ■



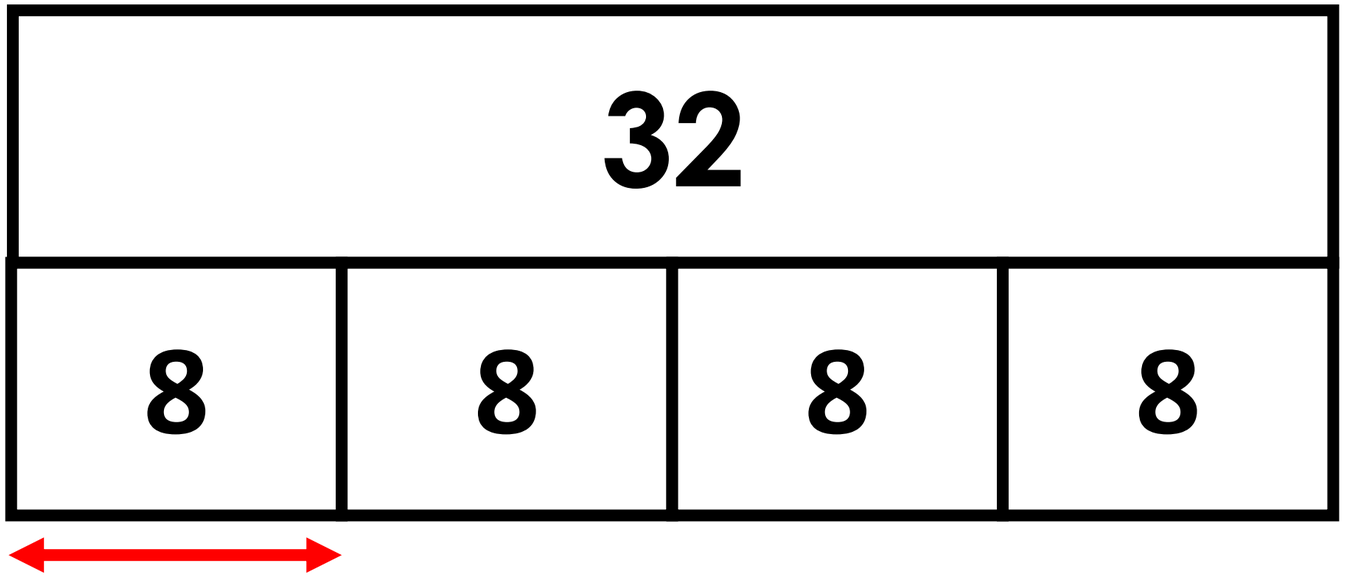
$\frac{1}{4}$ of ■ = ■



$\frac{1}{4}$ of ■ = 8

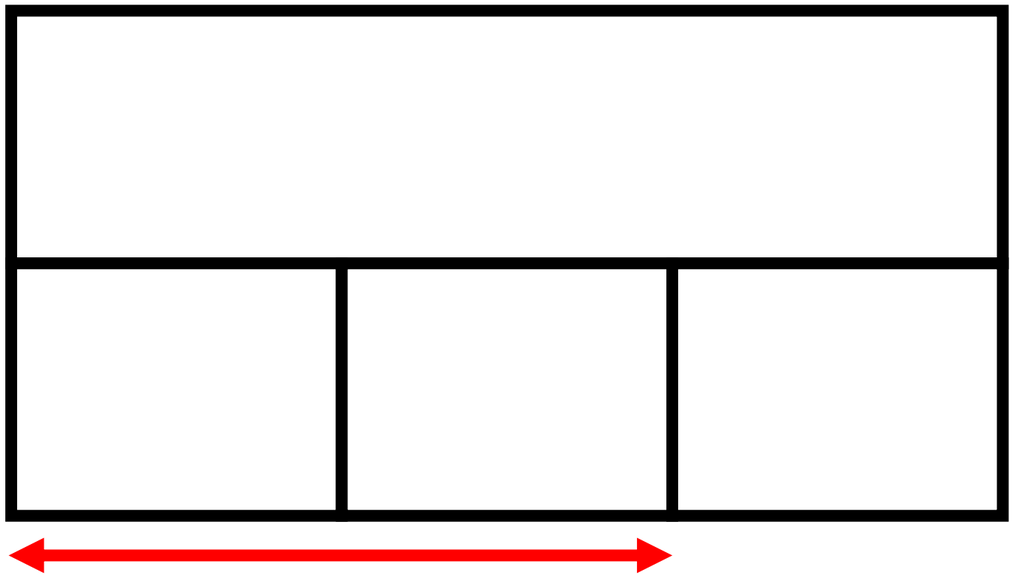


$\frac{1}{4}$ of 32 = 8

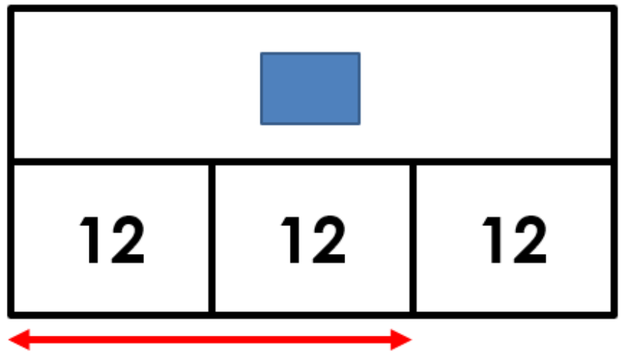


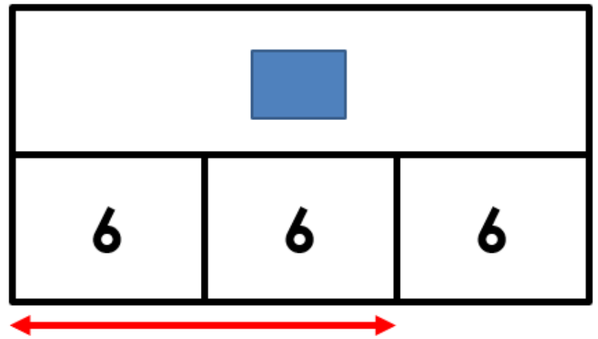
$\frac{2}{3}$ of  =

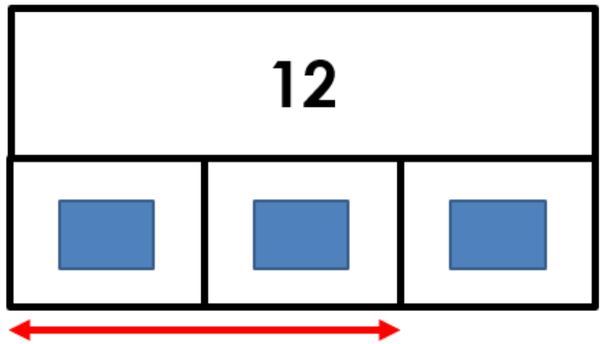
$\frac{2}{3}$ of ■ = ■



$\frac{2}{3}$ of ■ = 12







A circus is holding a concert for charity.

Adult tickets cost **£11**. Child tickets cost **£6**.

How many child tickets are sold?

What information must be given?

A circus is holding a concert for charity.

Adult tickets cost **£11**. Child tickets cost **£6**.

120 adult tickets are sold. In total, **£1800** is raised.

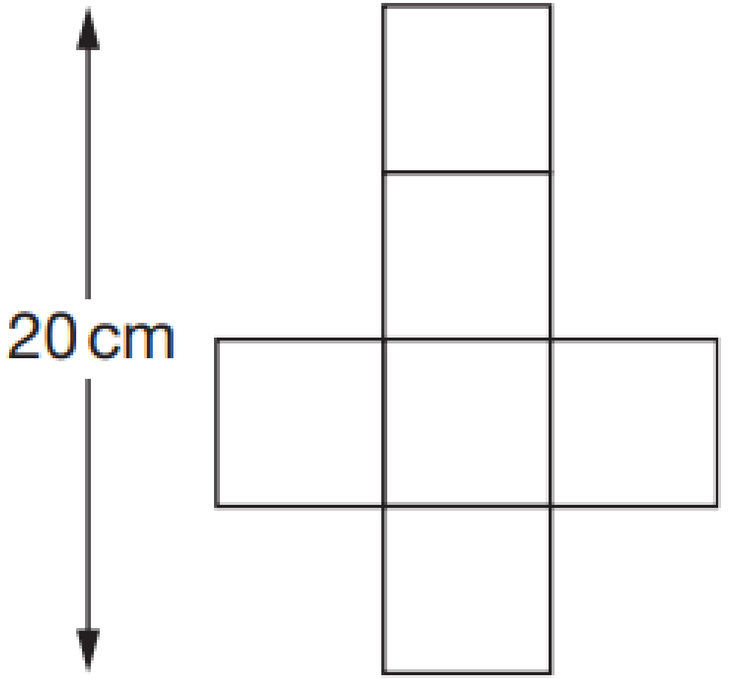
How many child tickets are sold?

Task C

For each question, **tick the correct answer.** Then, **explain the mistake.**

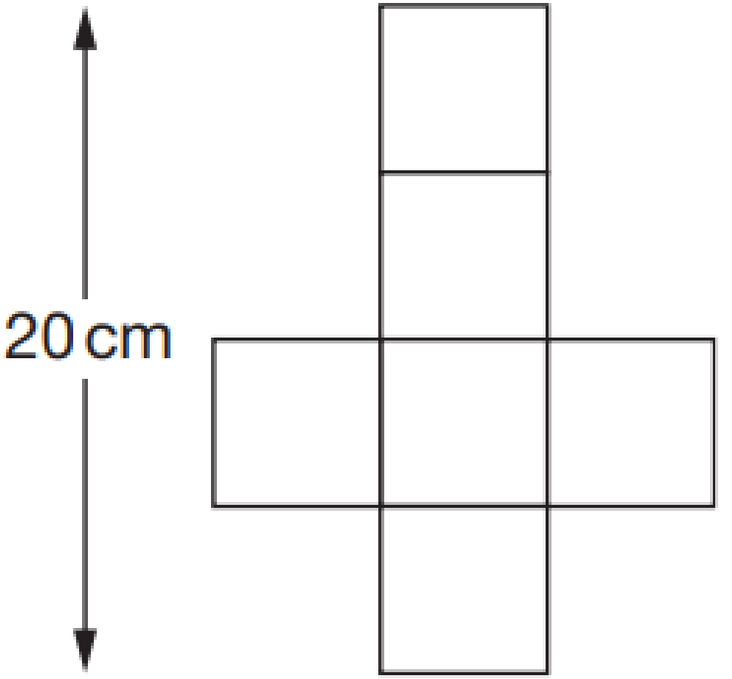
Question	Which answer? Explain the mistake.	
A band held a concert for charity. Adult tickets = £15 Child tickets = £8 250 tickets were sold. 110 of these were child tickets. **How much money was raised?**	**Answer A:** ✗ 250 × £15 = £3750 110 × £8 = £880 £3750 + £880 = **£4630**	**Answer B:** ✓ 140 × £15 = £2100 110 × £8 = £880 £2100 + £880 = **£2980**
	Explain the Mistake: The mistake in A is they forgot to take the child tikets amounts off the adults	
2000 people going to the match. Coaches can fit 60 people. Cars can fit 5 people. There are 25 coaches. **How many cars are needed to take everyone to the match?**	**Answer A:** ✗ 60 × 25 = 1500 2000 – 1500 = 500 **500 cars needed**	**Answer B:** ✓ 2000 – 60 × 25 = 500 500 ÷ 5 = 100 **100 cars needed**
	Explain the Mistake: They wrote the amount of people going in cars, not the amount of cars needed	

22



Not actual size

22 This is the net of a cube.



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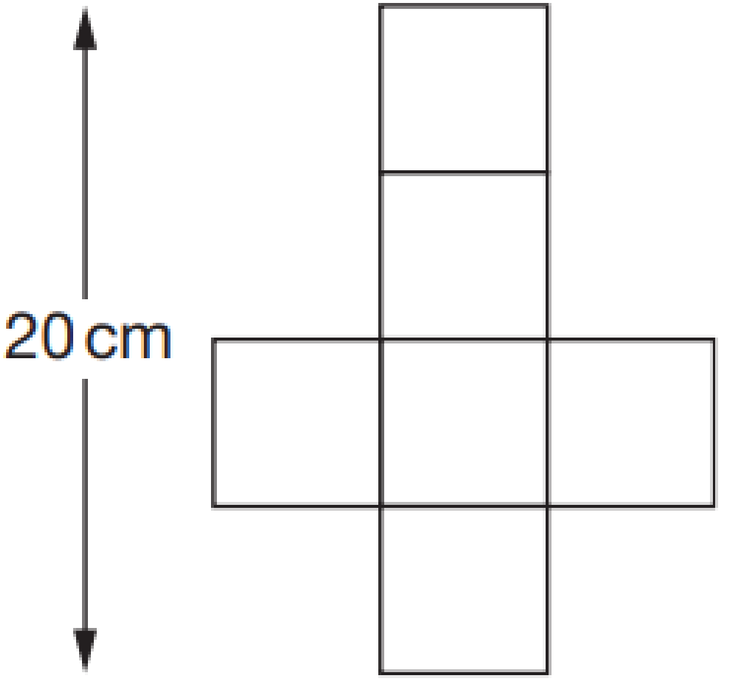

Not actual size

What is the **volume** of the cube?

Riley eats 2 biscuits a day.

How many does he eat in two years?

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How many does he eat in two 

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How many does he eat in two years?

60 minutes = 1 hour

24 hours = 1 day

7 days = 1 week

52 weeks ≈ 1 year

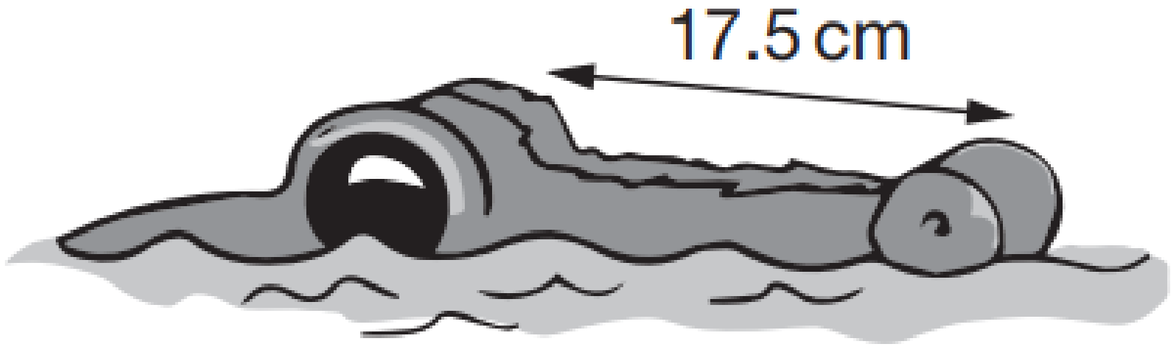
12 months = 1 year

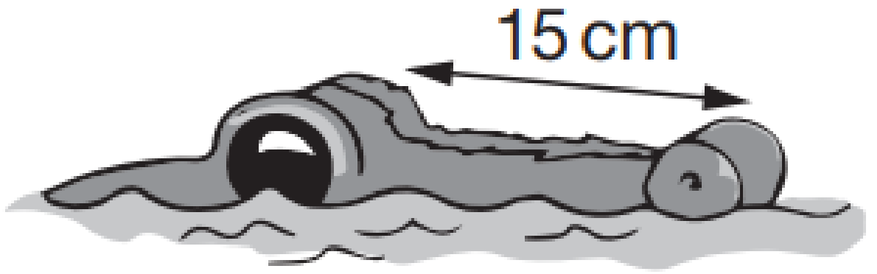
365 days = 1 year
(unless a leap year)

The length of an alligator can be estimated by:

- measuring the distance from its eyes to its nose
- then multiplying that distance by 12

What is the **difference** in the estimated lengths of these two alligators?





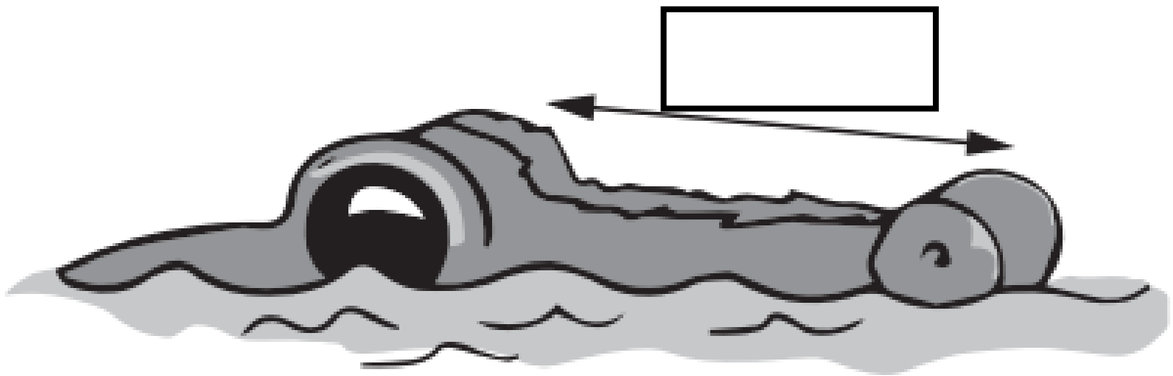
Not to scale

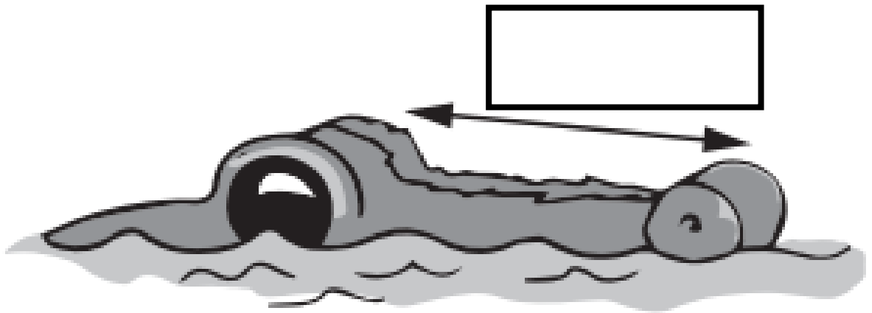
The length of an alligator can be estimated by:

- measuring the distance from its eyes to its nose
- then

(a) Add 250cm

(b) Multiply by 12





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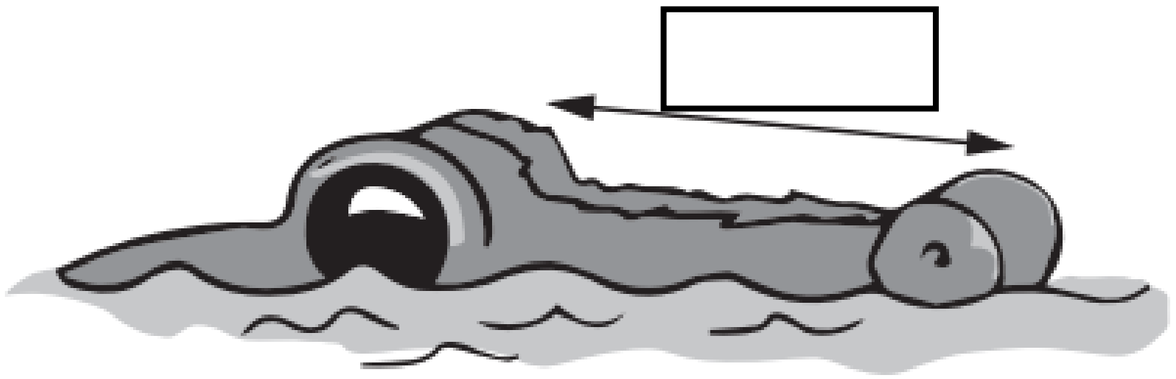

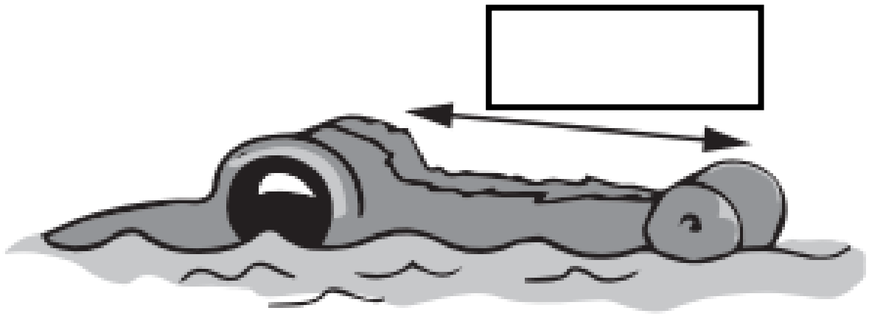

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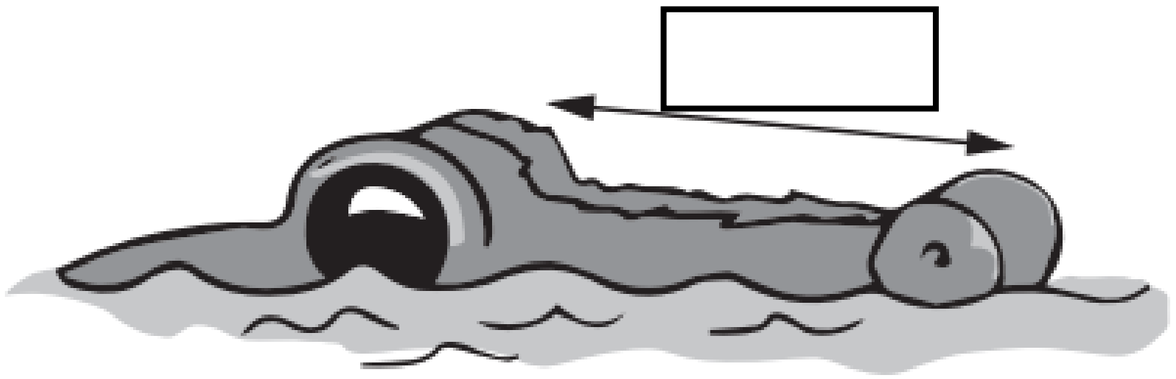

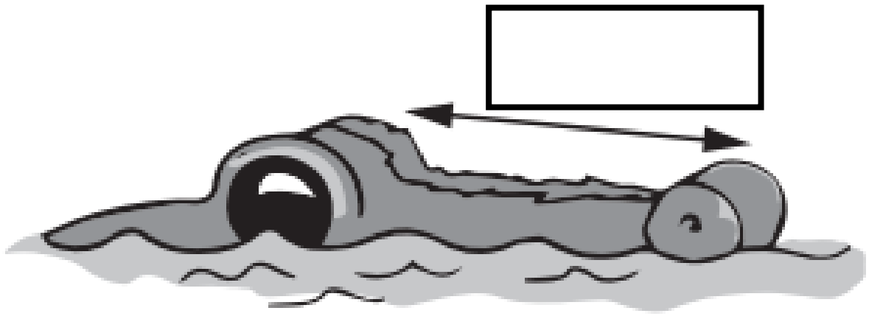

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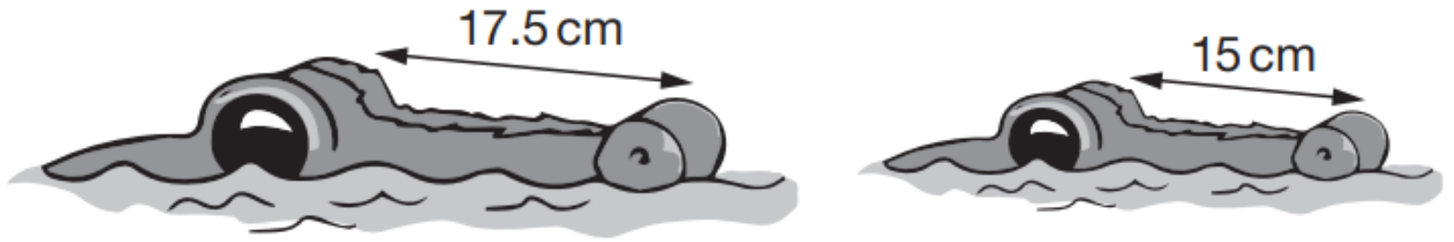


Not to scale

Method A:

17.5 × 12 = 210cm

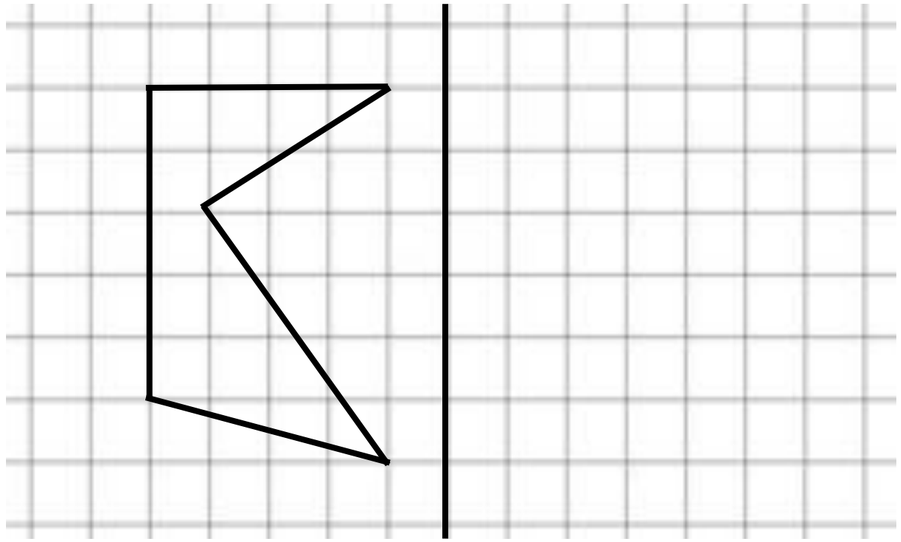
15 × 12 = 180cm

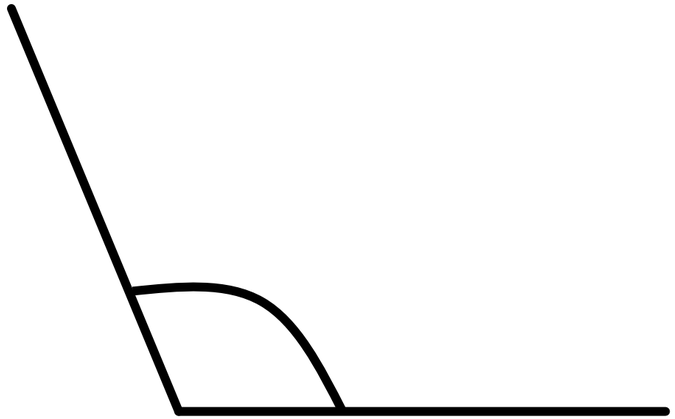
210cm – 180cm = **30cm**

Method B:

17.5cm – 15cm = 2.5cm

2.5cm × 12 = **30cm**

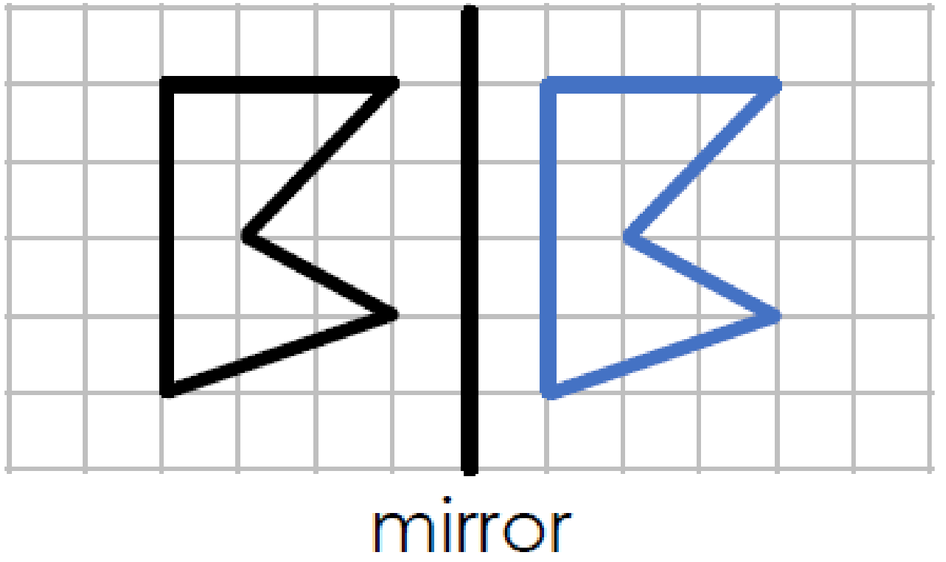

mirror



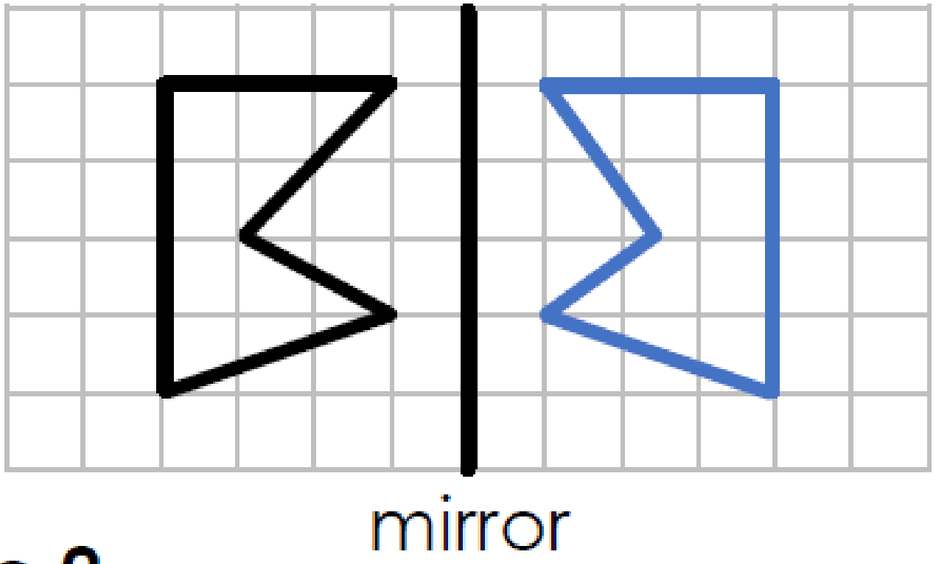
Explain the Mistakes

Reflect the shape in the mirror line.

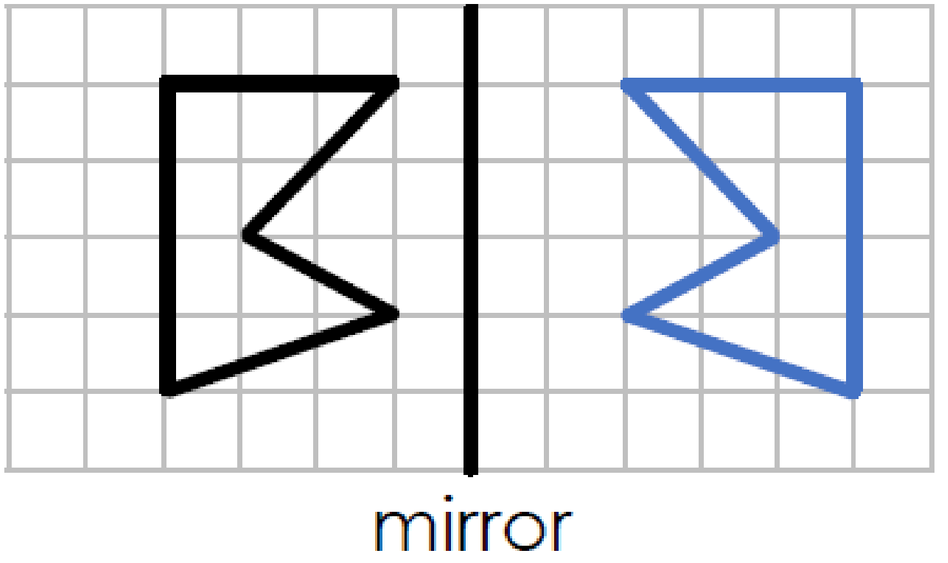
Mistake 1



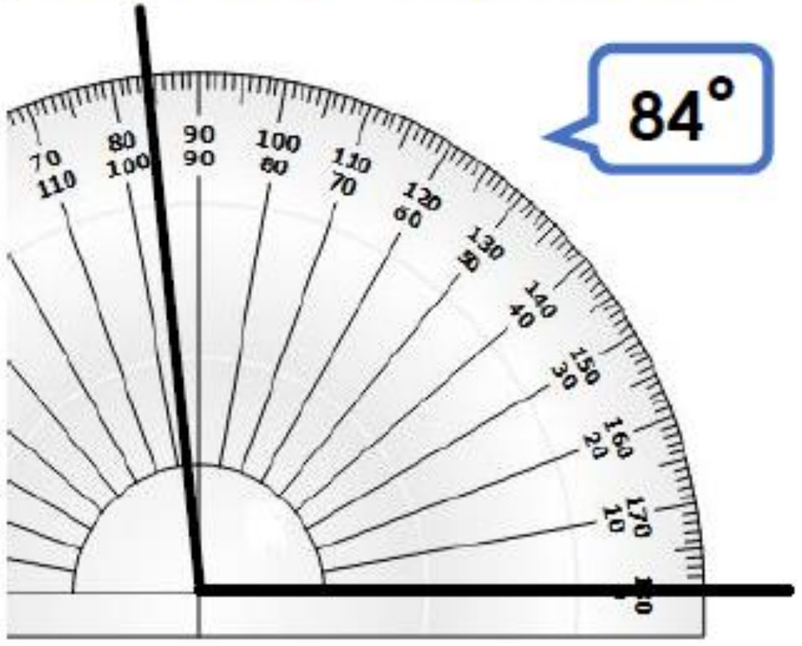
Mistake 3

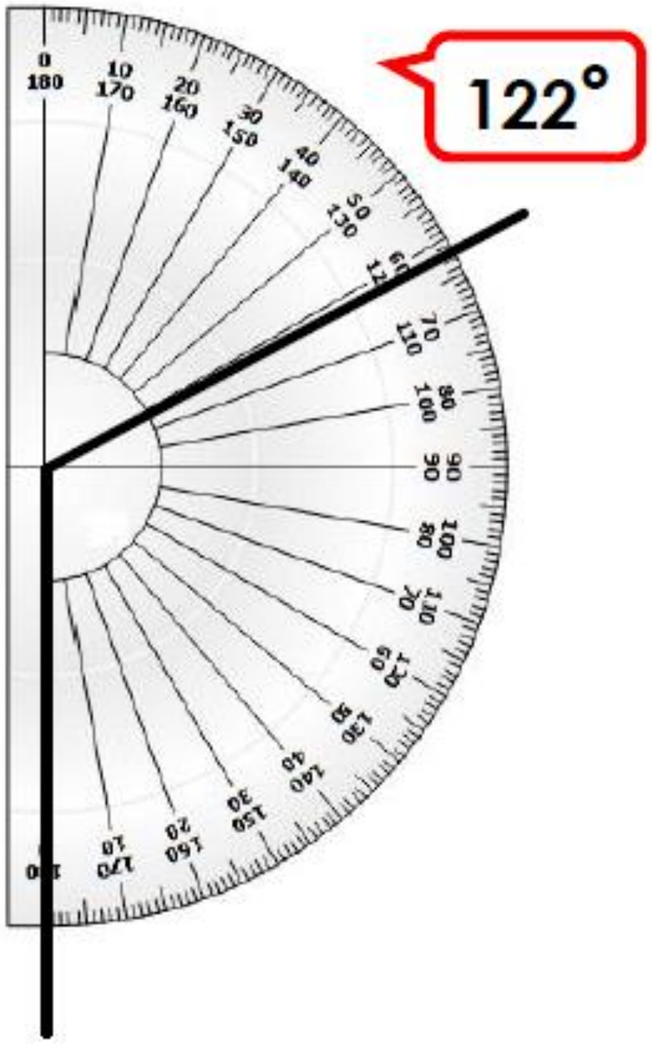


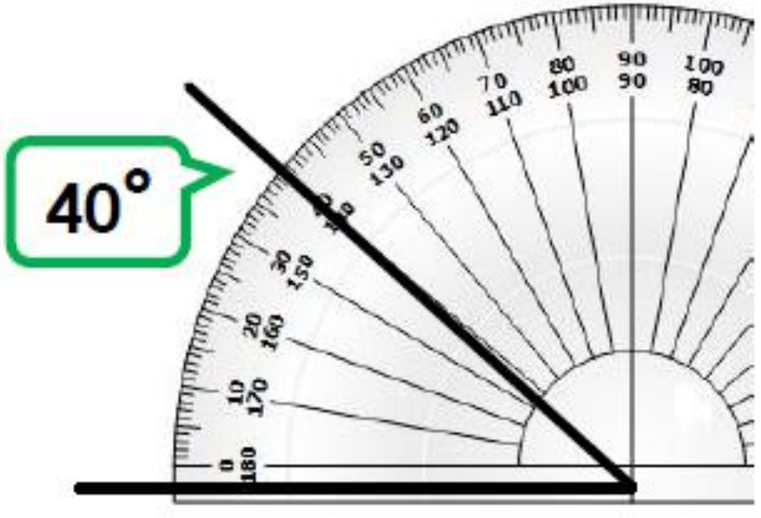
Mistake 2



Explain the Mistakes



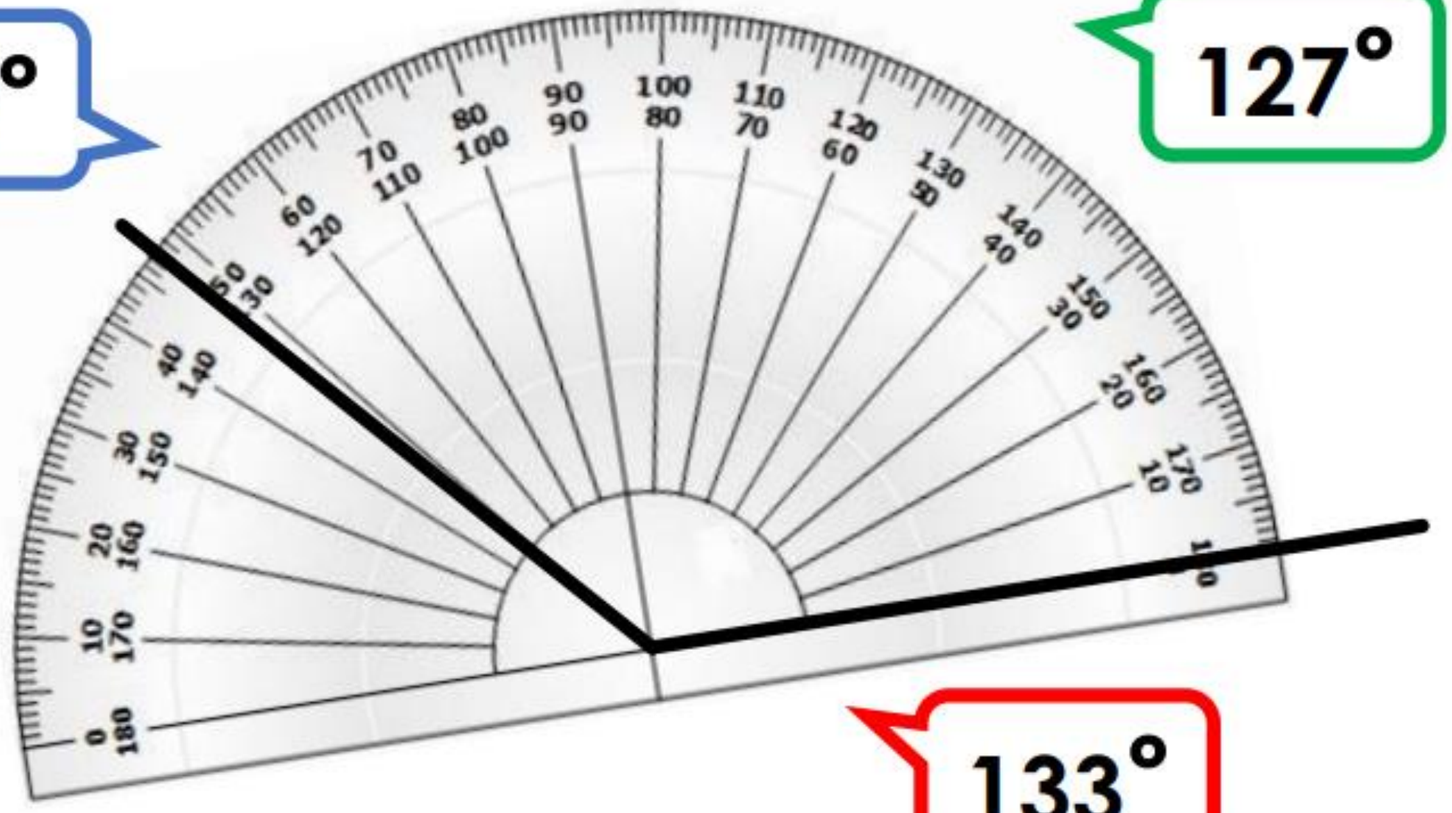




Which Answer?

47°

127°



133°

Explain the mistakes.

Explain the Mistakes

In Roman Numerals, 4 is written IIII

XL is 60 because it is 10 + 50

In Roman Numerals, 15 is written VVV

I = 1

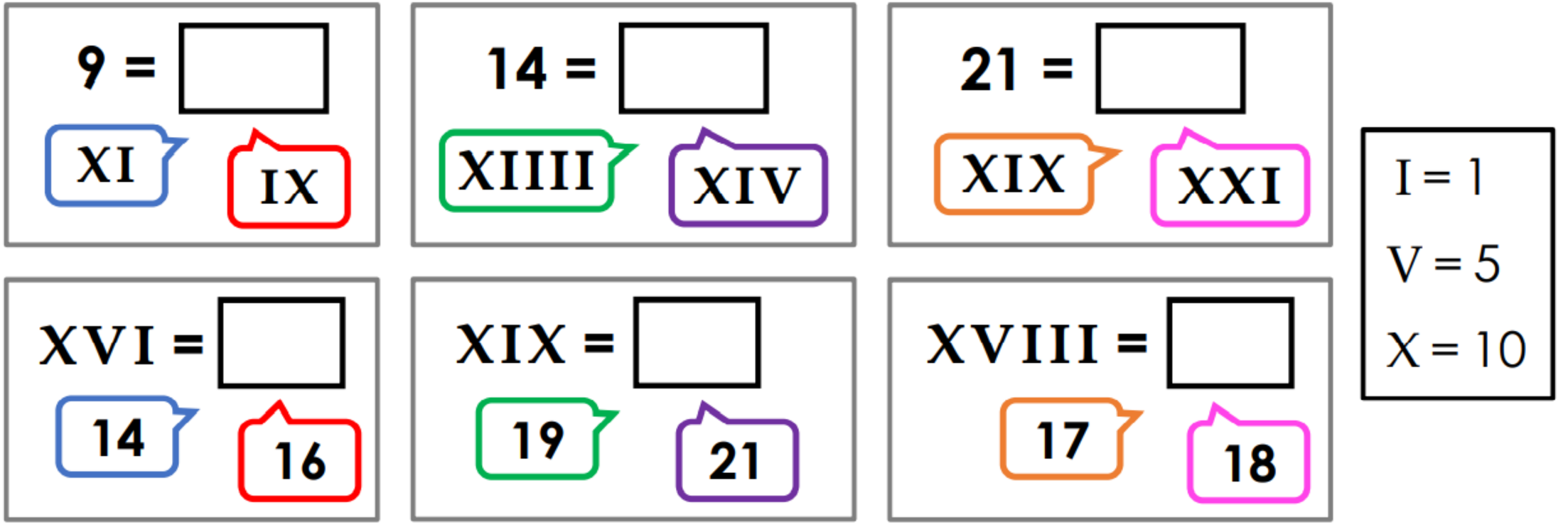
V = 5

X = 10

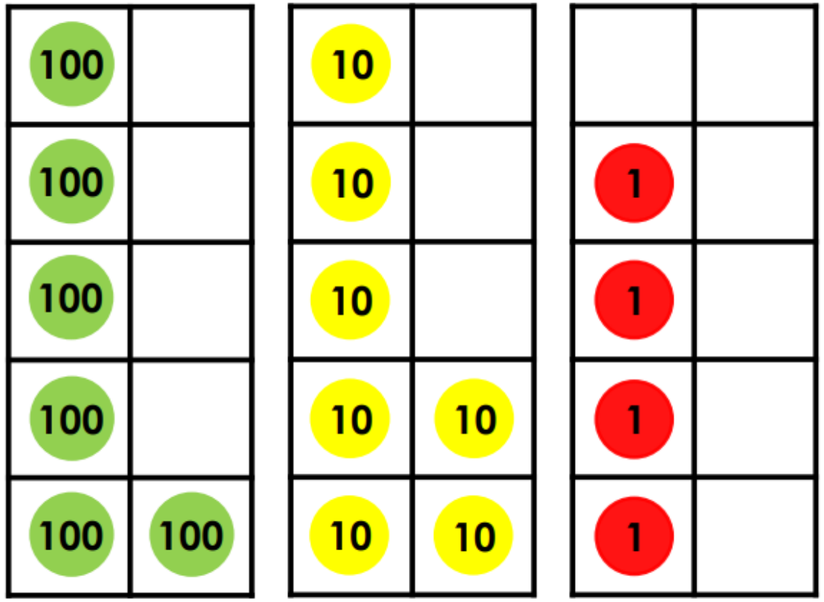
L = 50

Which Answer?

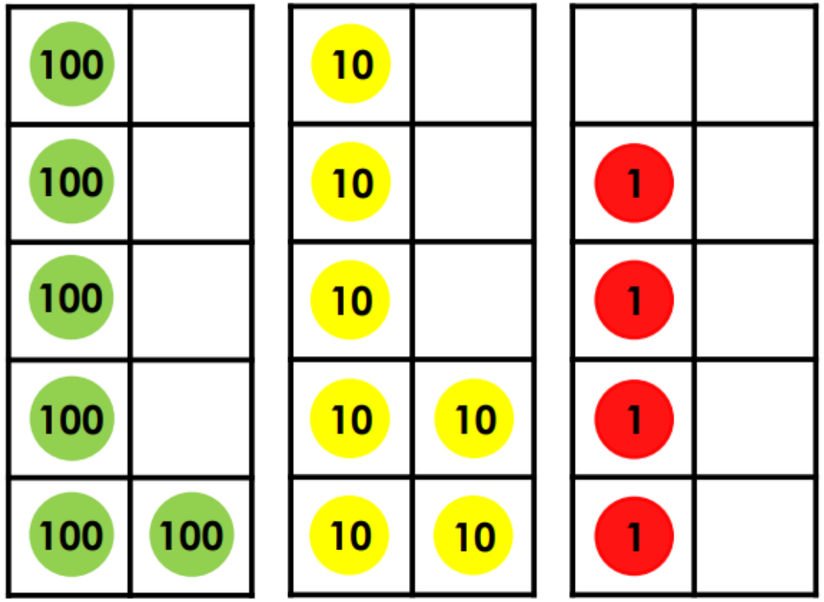
What is the missing Roman Numeral or number?



Explain the mistakes.



674 – 256



$$674 - 256$$

$$\begin{array}{r} 674 \\ -256 \\ \hline 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ 6\cancel{7}^{1}4 \\ -256 \\ \hline \\ \hline \end{array}$$

Correct or Incorrect? ✓ or ✗

Which of these regroups have been done correctly?

$$\begin{array}{r} {}^{4}\not{5}\,{}^{1}6\;8 \\ -\;4\;7\;3 \\ \hline 5 \\ \hline \end{array}$$

$$\begin{array}{r} {}^{2}\\ 5\;\not{3}\;6^{1} \\ -\;3\;0\;8 \\ \hline \\ \hline \end{array}$$

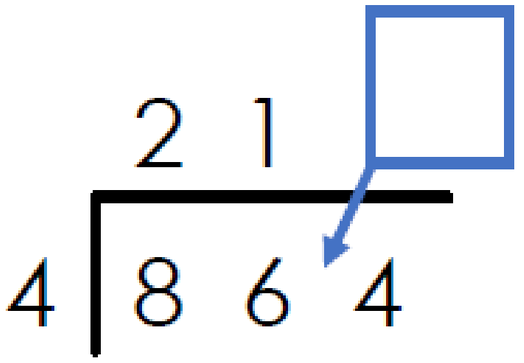
$$\begin{array}{r} {}^{6}\\ \not{7}\,{}^{1}8\;6 \\ -\;3\;7\;0 \\ \hline 6 \\ \hline \end{array}$$

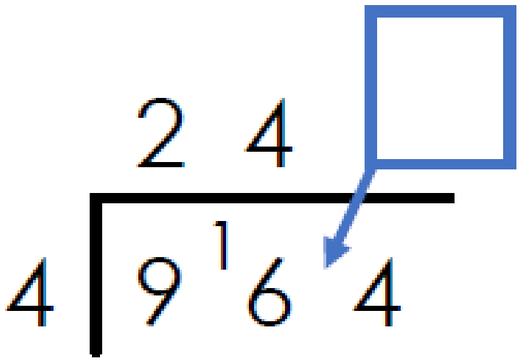
$$\begin{array}{r} {}^{7}\,{}^{1}5 \\ \not{8}\;\not{6}\,{}^{1}4 \\ -\;3\;6\;5 \\ \hline \\ \hline \end{array}$$

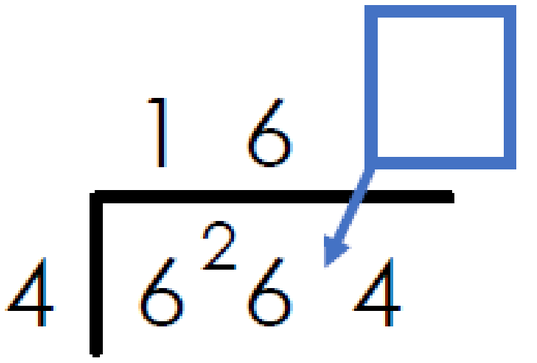
Next Step

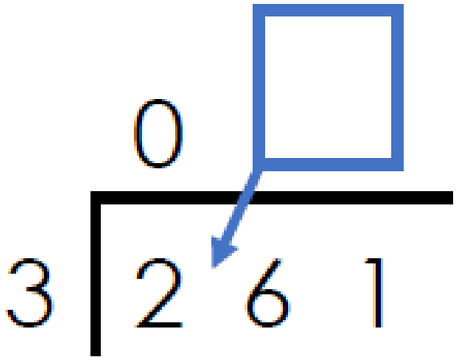
In each calculation, **what's the remainder?**

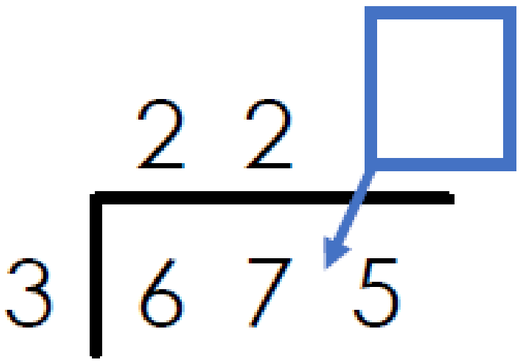
$$3\overline{)5^{2}8^{1}2}\quad 1\,9\,4$$

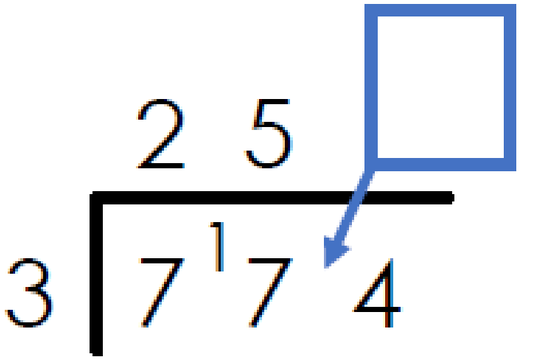












Explain the Mistakes

Example A:

$$\begin{array}{r} {\scriptstyle 1\ \ \ \ \ } \\ 5\,\cancel{2}^{\,1}3\,3 \\ -\,4\,1\,5 \\ \hline 1\,0\,8\,3 \\ \hline \end{array}$$

Example B:

$$\begin{array}{r} {\scriptstyle 0\ \ \ \ \ } \\ \cancel{1}^{\,1}2\,6\,7 \\ -\quad 9\,2\,8 \\ \hline 0\,3\,4\,1 \\ \hline \end{array}$$

Example C:

$$\begin{array}{r} {\scriptstyle 8\ \ \ \ \ } \\ \cancel{9}\,0^{\,1}2\,3 \\ -\,6\,0\,7\,0 \\ \hline 2\,0\,5\,3 \\ \hline \end{array}$$

Extend: *complete the calculations correctly.*

How Many Ways?

Make all the fractions that are **more than 0.5 and less than 0.75** using these numbers:

2 3 4 5 6 8

Level 1: *I can find a way*

Level 2: *I can find different ways*

Level 3: *I know how many ways there are*

How Many Ways?

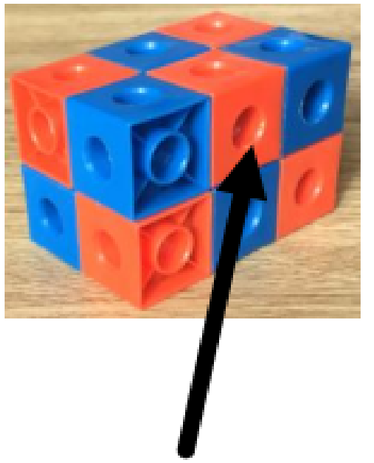
Make a cuboid using 16 to 18 cubes.

There must be at least 4 squares on each face of the cuboid.

Level 1: *I can find a way*

Level 2: *I can find different ways*

Level 3: *I know how many ways there are*



6 squares on this face

How Many Ways?

$$\frac{\square}{8} + \frac{1}{\square} = \frac{\square}{4}$$

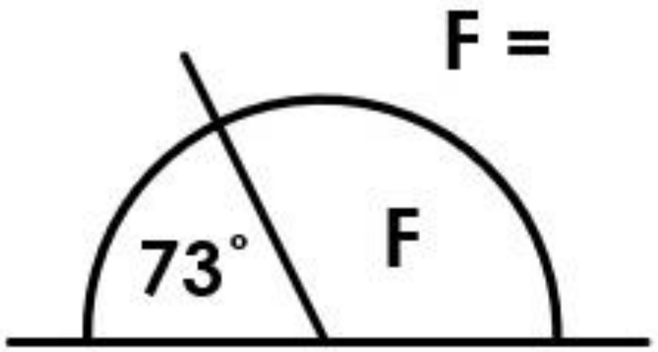
The answer must be a proper fraction.

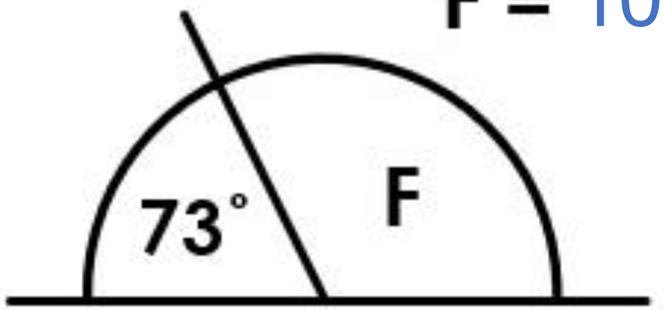
Level 1: *I can find a way*

Level 2: *I can find different ways*

Level 3: *I know how many ways there are*

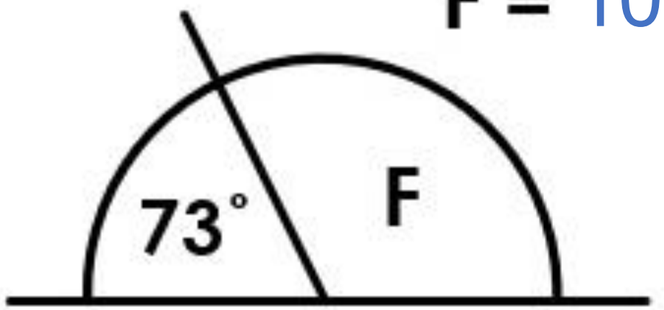
F =



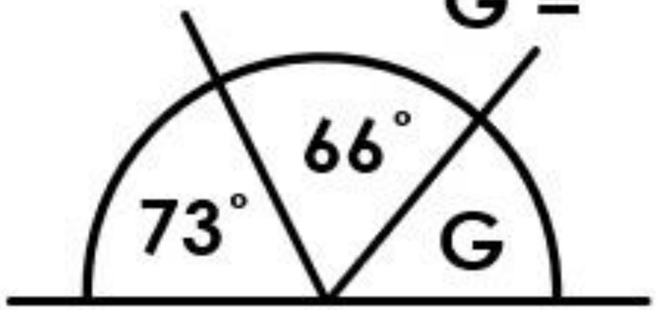


F = 107°

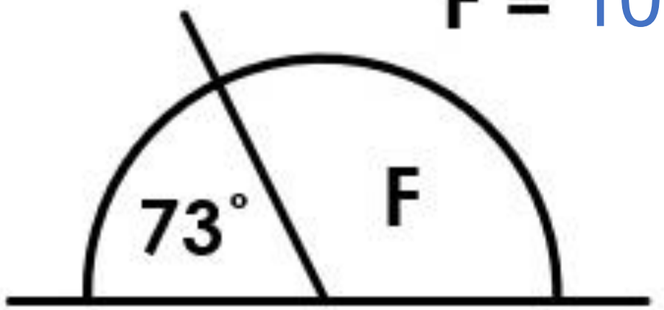
F = 107°



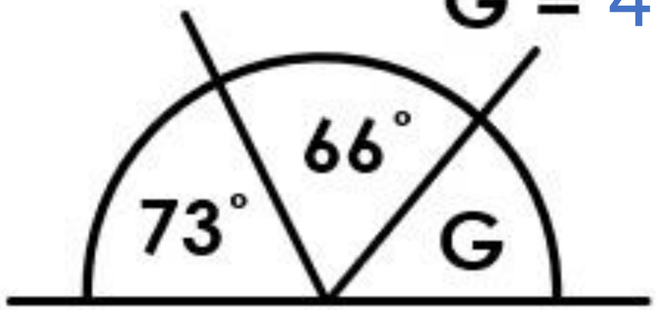
G =



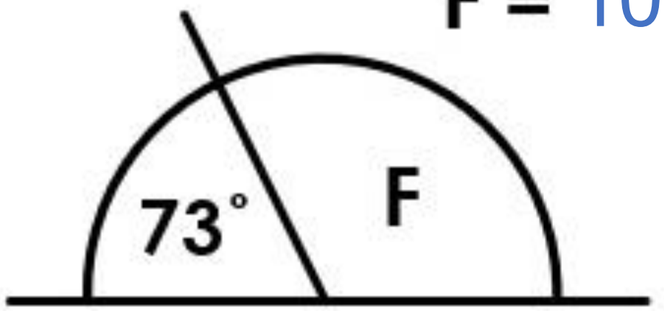
F = 107˚



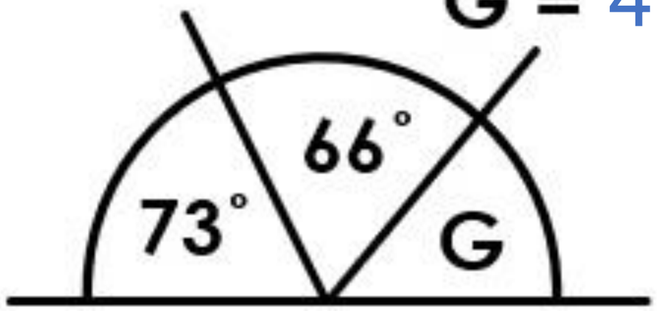
G = 41˚



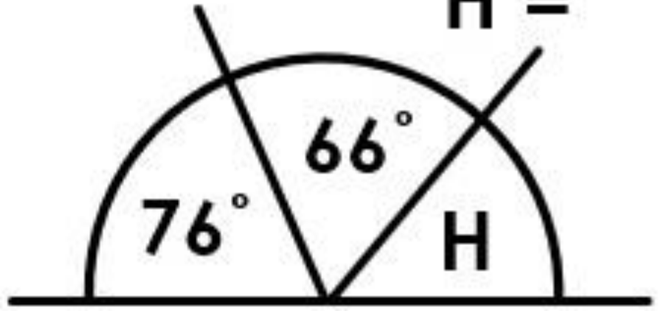
F = 107˚



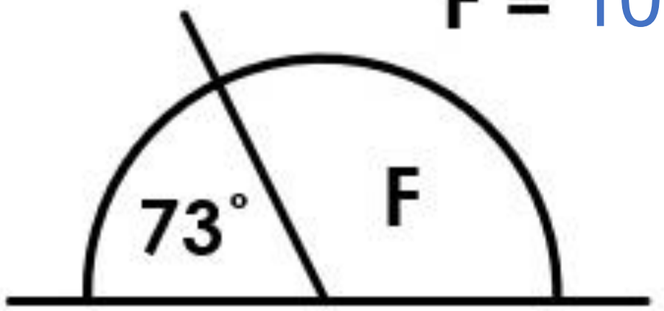
G = 41˚



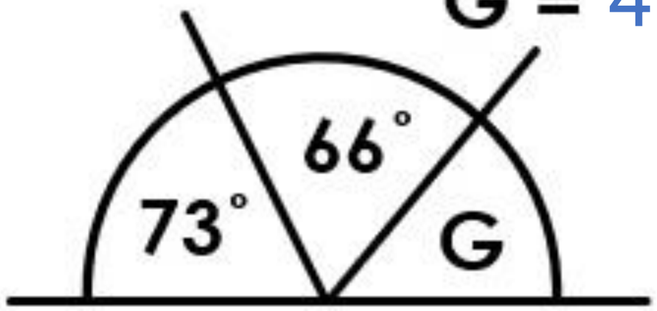
H =



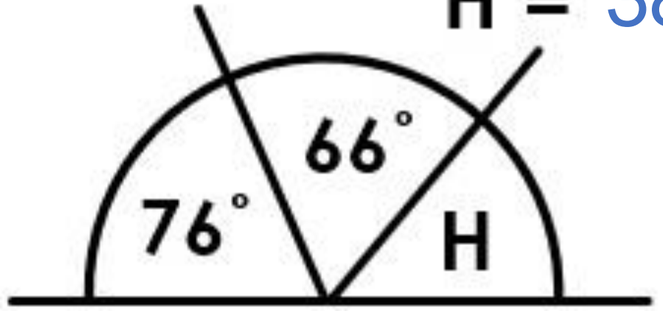
F = 107˚



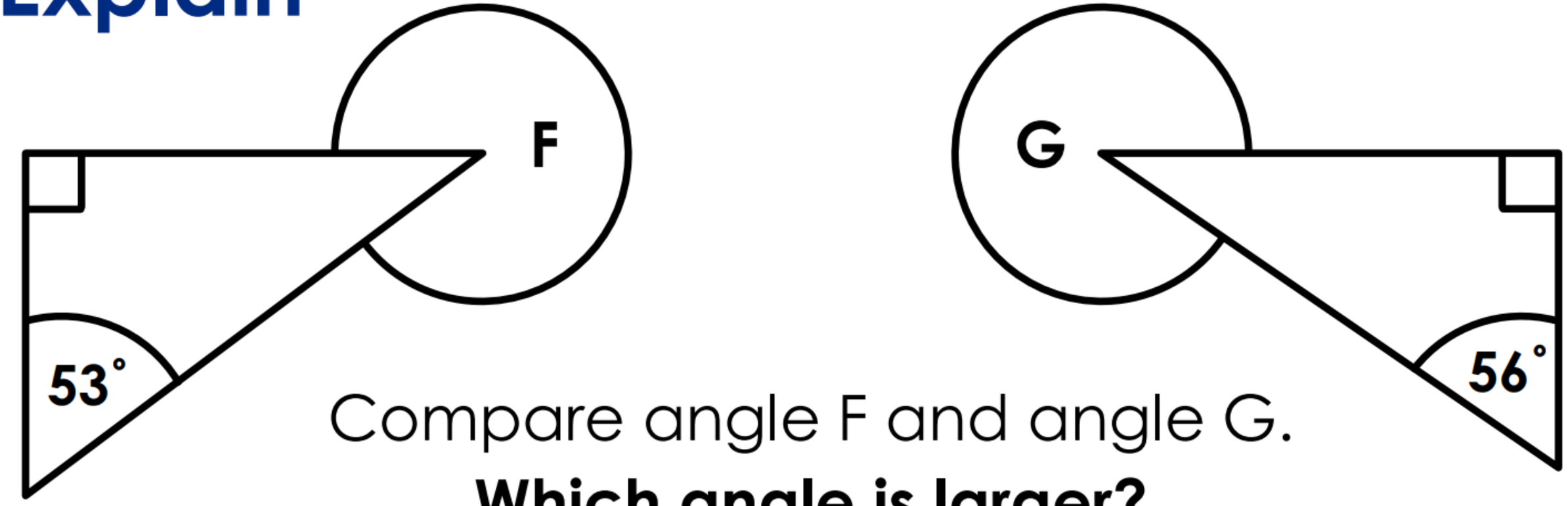
G = 41˚



H = 38˚



Explain



Compare angle F and angle G.

Which angle is larger?

4, ___, ___, 22

0, ____, 18

4, ____, 22

4, ____, ____, 22

0, 9, 18

4, ___, 22

4, ___, ___, 22

0, 9, 18

4, 13, 22

4, ___, ___, 22

0, 9, 18

4, 13, 22

4, 10, 16, 22

$100 - 10 \times 6 =$ ☐

$100 - (10 \times 6) =$ ☐

$(100 - 10) \times 6 =$ ☐

$100 - 10 \times 6 =$ 40

$100 - (10 \times 6) =$ ☐

$(100 - 10) \times 6 =$ ☐

$100 - 10 \times 6 =$ 40

$100 - (10 \times 6) =$ 40

$(100 - 10) \times 6 =$

$100 - 10 \times 6 =$ **40**

$100 - (10 \times 6) =$ **40**

$(100 - 10) \times 6 =$ **540**

$\frac{1}{10}$ of 40 = ☐

$\frac{1}{5}$ of 40 = ☐

$\frac{2}{5}$ of 40 = ☐

$\frac{4}{10}$ of 40 = ☐

$\frac{1}{10}$ of 40 = 4

$\frac{1}{5}$ of 40 = 8

$\frac{2}{5}$ of 40 = 16

$\frac{4}{10}$ of 40 = 16

(d) 364 + 183

(e) 381 + 166

(d) 674 – 385

(e) 551 – 262

(d) 342 × 8

(e) 684 × 4

(d) 162 ÷ 3

(e) 324 ÷ 6

$162 \div 3$

$162 \div 6$

$324 \div 6$

$694 - 365$

$674 - 385$

$551 - 262$

$\frac{1}{10}$ of 40 = ☐

$\frac{1}{5}$ of 40 = ☐

$\frac{2}{5}$ of 40 = ☐

$\frac{4}{10}$ of 40 = ☐

$28 \div 4 =$ ☐

$28 \div 4 =$ ☐ + 1

$28 \div 4 =$ ☐ × 1

$28 \div 4 =$ ☐ ÷ 1

92. In some schools, pupils were not explicitly taught how to apply the mathematics they had recently learned to mathematical problems. Their only exposure to solving mathematical problems was through answering the final few questions of a predominantly procedure-focused exercise. Often, many pupils did not reach this stage of the exercise. These pupils, therefore, had very little experience of applying mathematical methods beyond routine and established applications. Pupils in these schools were notably less confident when solving mathematical problems.

93. In a minority of schools, problem-solving was explicitly planned into the curriculum. Teachers understood the importance of demonstrating how to apply mathematical methods to problems and giving pupils multiple opportunities to practise applying these methods to structurally similar problems. In the most successful lessons, teachers clearly 'drew out' the similarities between problems to help pupils identify the mathematical techniques that might be useful for different types of problem.

Link

Contexts

Which questions are answered by calculating 15 ÷ 5?

(a) There are 15 children in the hall. There are 5 children at each table. **How many tables are there in the hall?**

(b) 15 people have 5 grapes each. **How many grapes in total?**

(c) 5 children share 15 pencils. **How many pencils each?**

(d) Of the 15 children that go to running club, there are 5 girls. **How many boys go to running club?**

Interpreting Remainders

(a) Cupcakes are packed in boxes of 6.
The bakery has made 30 cupcakes.
How many full boxes can be made?

(b) Cupcakes are packed in boxes of 6.
The bakery has made 32 cupcakes.
How many full boxes can be made?

(c) Cupcakes are packed in boxes of 6.
The bakery has made 32 cupcakes.
How many boxes are needed to hold all of the cupcakes?

Tom had $\square$

He was given **£30** for his birthday.

Then he spent **half** of his money on a bike.

Tom has **£60** left.

Tom had 

He was given **£30** for his birthday.

Then he spent **half** of his money on a bike.

Tom has **£60** left.

Money Tom had

Tom had $\square$

He was given **£30** for his birthday.

Then he spent **half** of his money on a bike.

Tom has **£60** left.

Money Tom had	**£30**

Tom had $\square$

He was given **£30** for his birthday.

Then he spent **half** of his money on a bike.

Tom has **£60** left.

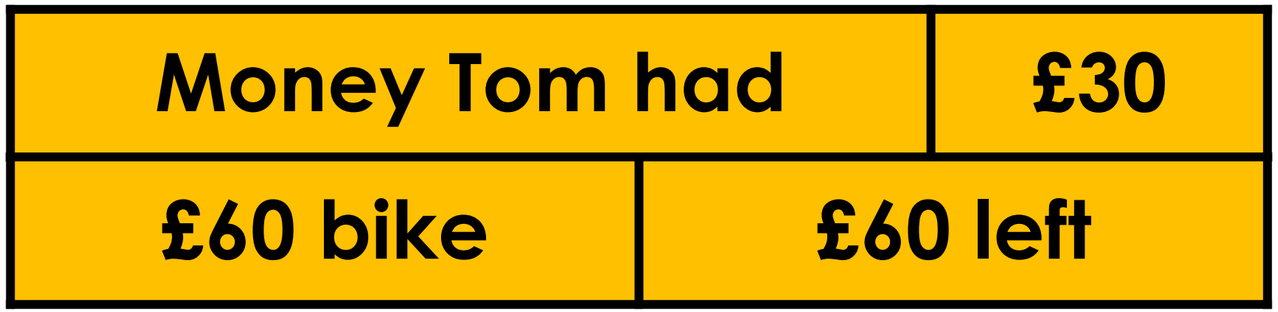
Money Tom had	**£30**
Cost of bike	**£60 left**

Tom had $\square$

He was given **£30** for his birthday.

Then he spent **half** of his money on a bike.

Tom has **£60** left.



Tom had **£90**

He was given **£30** for his birthday.

Then he spent **half** of his money on a bike.

Tom has **£60** left.

My number was 

I multiply my number by **4**

Then I subtract **15**

Now my number is **21**

My number was ☐

I multiply my number by **4**

Then I subtract **15**

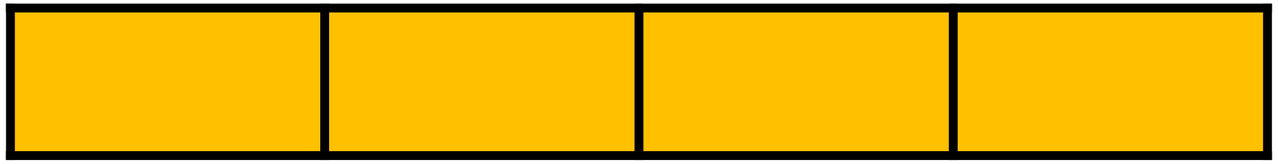
Now my number is **21**

My number was $\square$

I multiply my number by **4**

Then I subtract **15**

Now my number is **21**

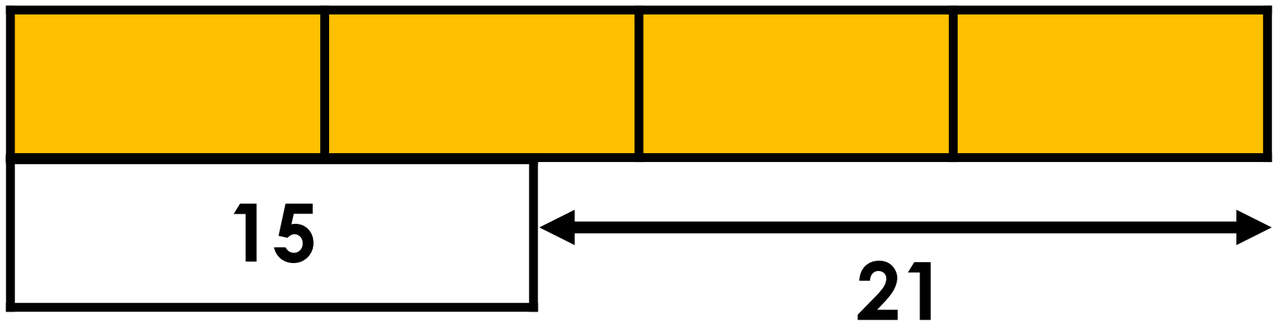


My number was $\square$

I multiply my number by **4**

Then I subtract **15**

Now my number is **21**

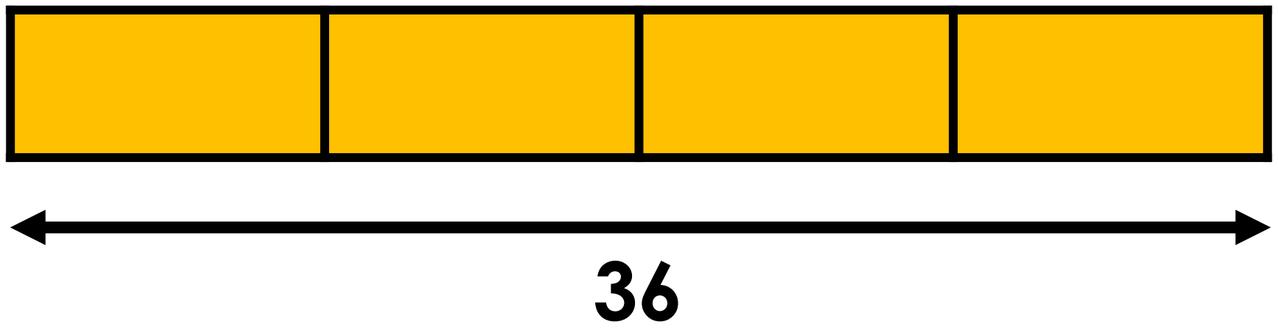


My number was $\square$

I multiply my number by **4**

Then I subtract **15**

Now my number is **21**

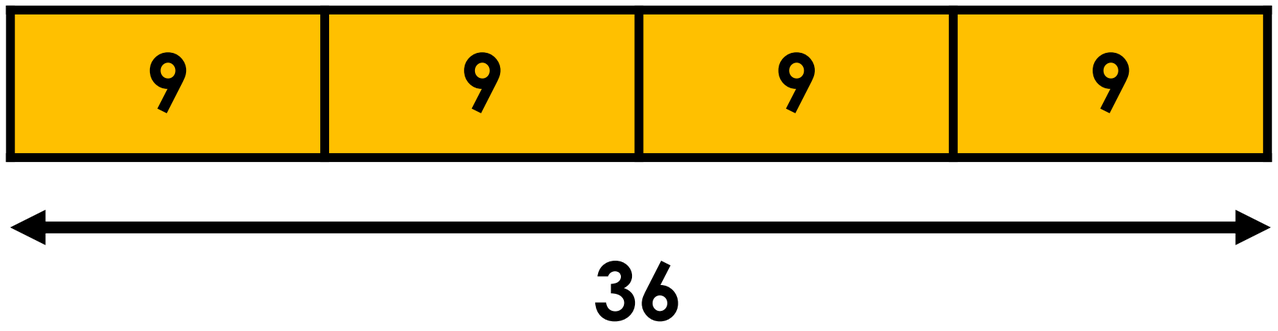


My number was **9**

I multiply my number by **4**

Then I subtract **15**

Now my number is **21**



Inverse

Task A

(a) My number was ☐. I add **3**. Then I multiply by **4**. Now my number is ☐

(b) My number was ☐. I subtract **3**. Then I divide by **2**. Now my number is ☐

(c) My number was ☐. I add **4**. Then I divide by **2**. Now my number is **12**.

(d) My number was ☐. I add **4**. Then I multiply by **2**. Now my number is **12**.

(e) My number was **15**. I multiply by **4**. Then I subtract **25**. Now my number is ☐

(f) My number was ☐. I add **25**. Then I divide by **4**. Now my number is **15**.

Jen thinks of a number.

She multiplies her number by **3**

Then she adds **2**

Now Jen's number is ☐

She adds **2**

Then she multiplies her number by **3**

Now Jen's number is ☐

*'The **blue/red** number will be larger because…'*

Jen thinks of a number.

She multiplies her number by **3**

Then she adds **2**

Now Jen's number is ☐

She adds **2**

Then she multiplies her number by **3**

Now Jen's number is ☐

Jen thinks of a number.

She multiplies her number by **3**

Then she adds **2**

Now Jen's number is ☐

She adds **2**

Then she multiplies her number by **3**

Now Jen's number is ☐

Jen thinks of a number.

She multiplies her number by **3**

Then she adds **2**

Now Jen's number is ☐

She adds **2**

Then she multiplies her number by **3**

Now Jen's number is ☐

Jen thinks of a number.

She multiplies her number by **3**

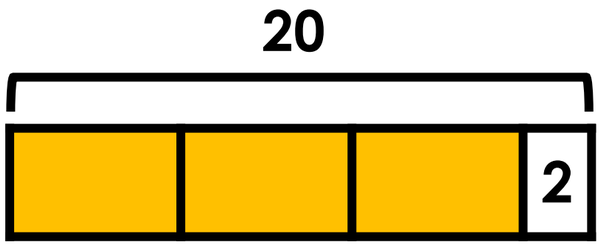
Then she adds **2**

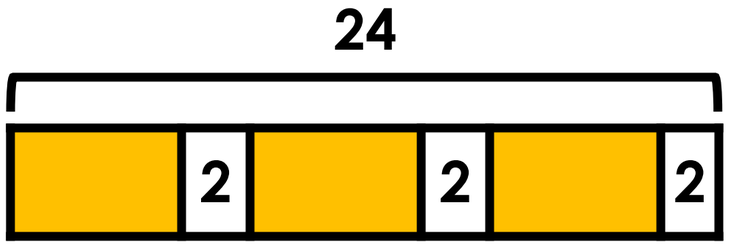
Now Jen's number is **20**

She adds **2**

Then she multiplies her number by **3**

Now Jen's number is **24**





Jen thinks of a number.

She multiplies her number by **3**

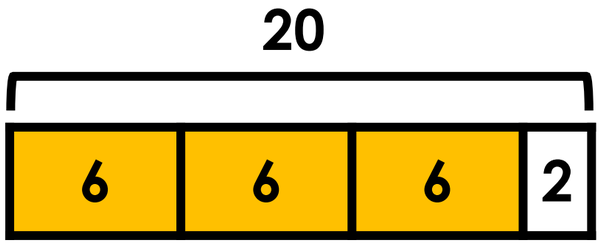
Then she adds **2**

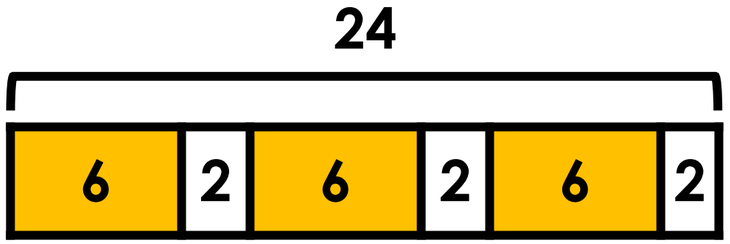
Now Jen's number is **20**

She adds **2**

Then she multiplies her number by **3**

Now Jen's number is **24**





(a) I chose a number. I multiplied my number by 3. Then I added 5.
Now, my number is 26. **What number did I choose?** 7

(b) I chose a number. I multiplied my number by 3. Then I added 6.
Now, my number is 27. **What number did I choose?** 7

(c) I chose a number. I multiplied my number by 3. Then I subtracted 6.
Now, my number is 27. **What number did I choose?** 11

(d) I chose a number. I divided my number by 3. Then I subtracted 6.
Now, my number is 27. **What number did I choose?** 99

33
x 3
99

The answer to question [D] *is* ***the same/larger/smaller*** *than question* [C]
because…

Inverse

Task C

My number was ☐

I **multiply/divide** my number by **6**

I **add/subtract 3**

Now my number is **27**

What is the **largest number** that could go in the blue box? 180

What is the **smallest number** that could go in the blue box? 4

To make the number in the blue box as large as possible…

– and ÷, the start must be as big as possible!

There are **24** children at running club.

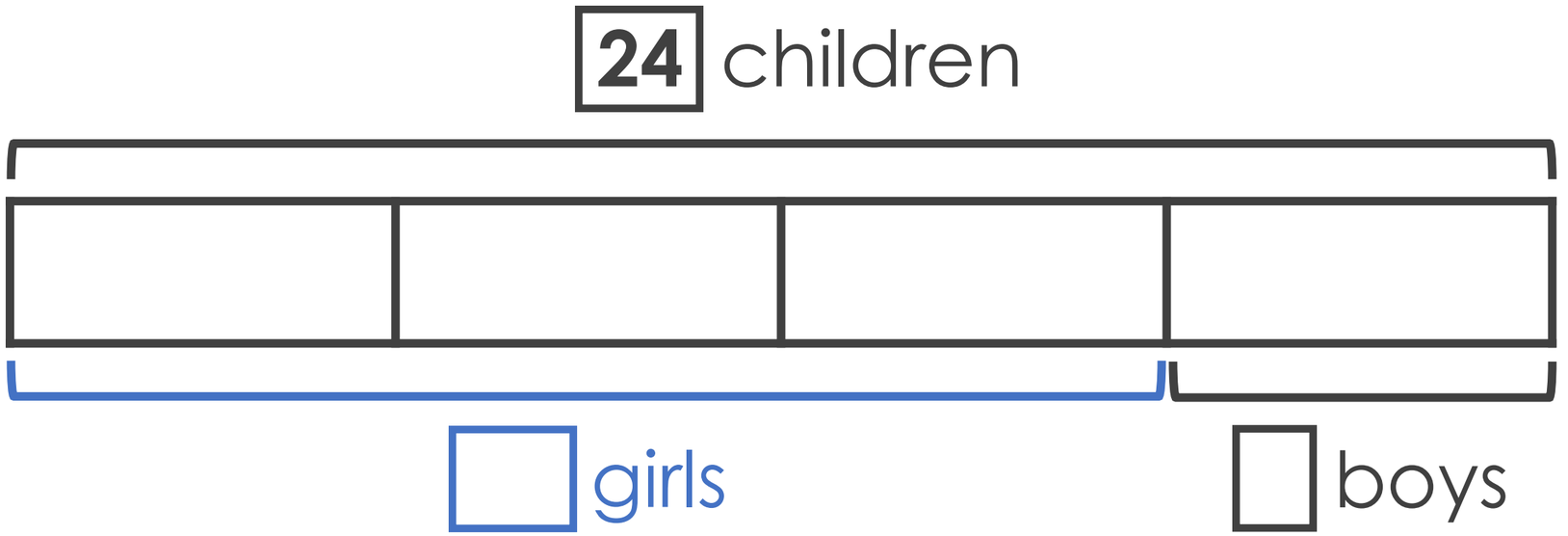
$\frac{3}{4}$ of the children at running club are girls.

How many girls go to running club?

There are **24** children at running club.

$\frac{3}{4}$ of the children at running club are girls.

How many girls go to running club?



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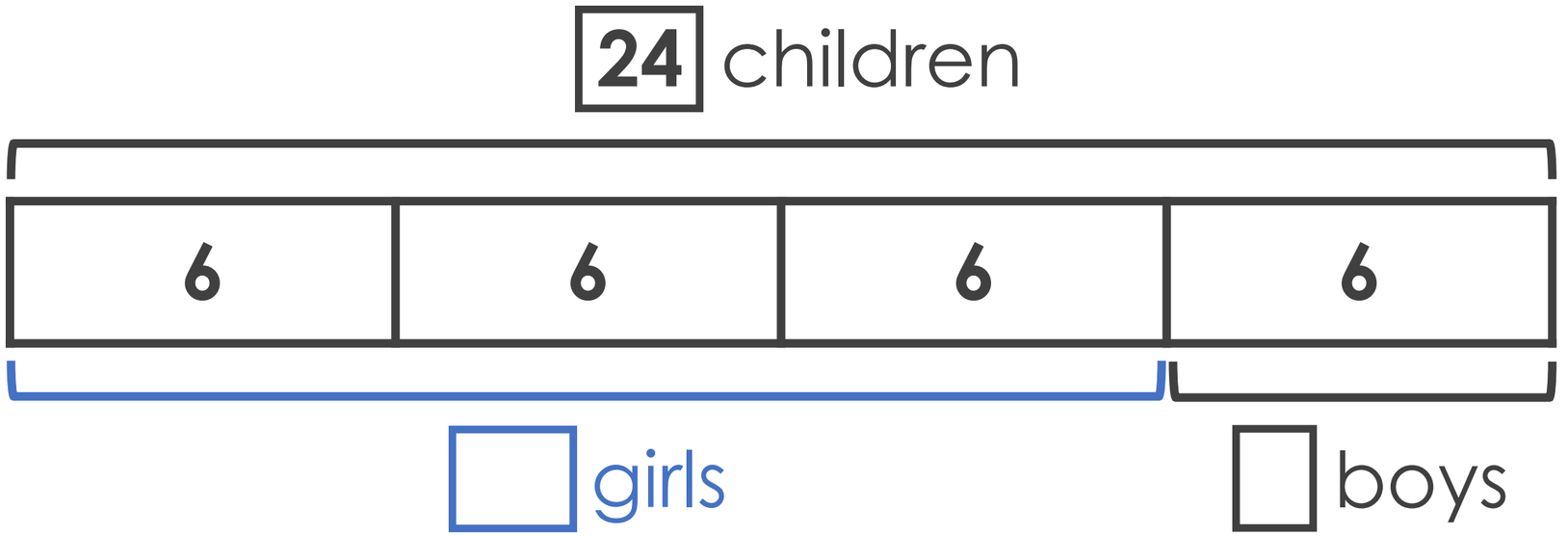
How many girls go to running club?



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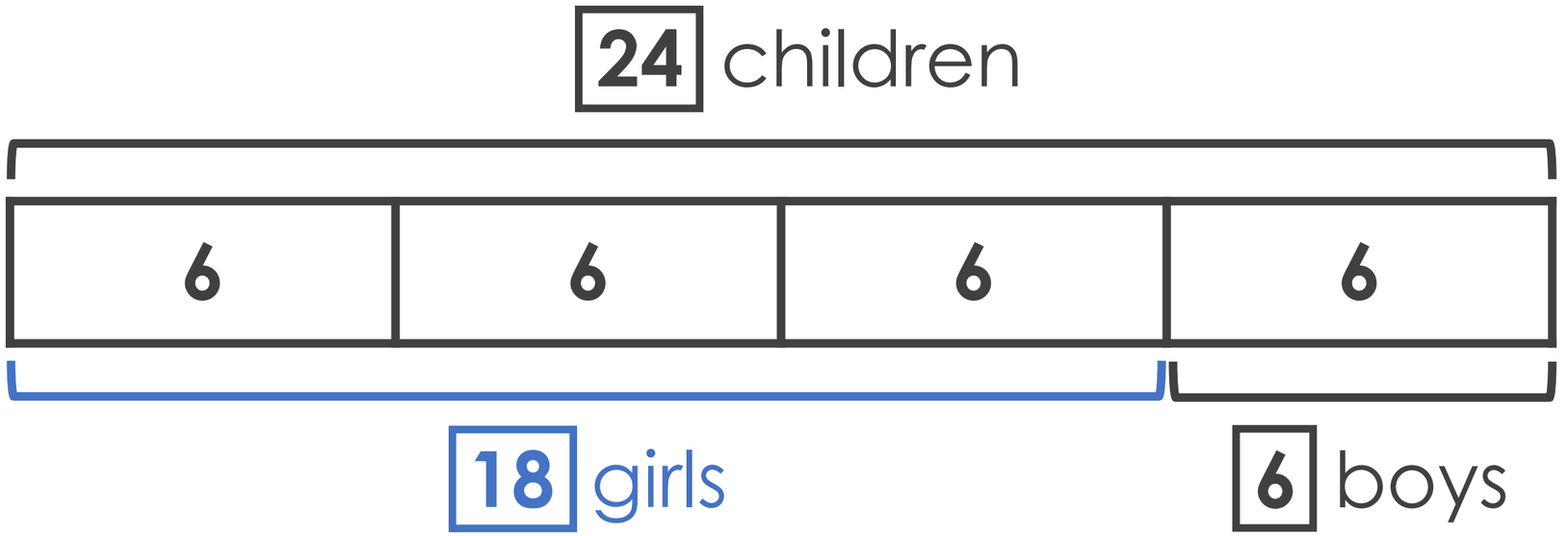
How many girls go to running club?



Ben had **£24**.

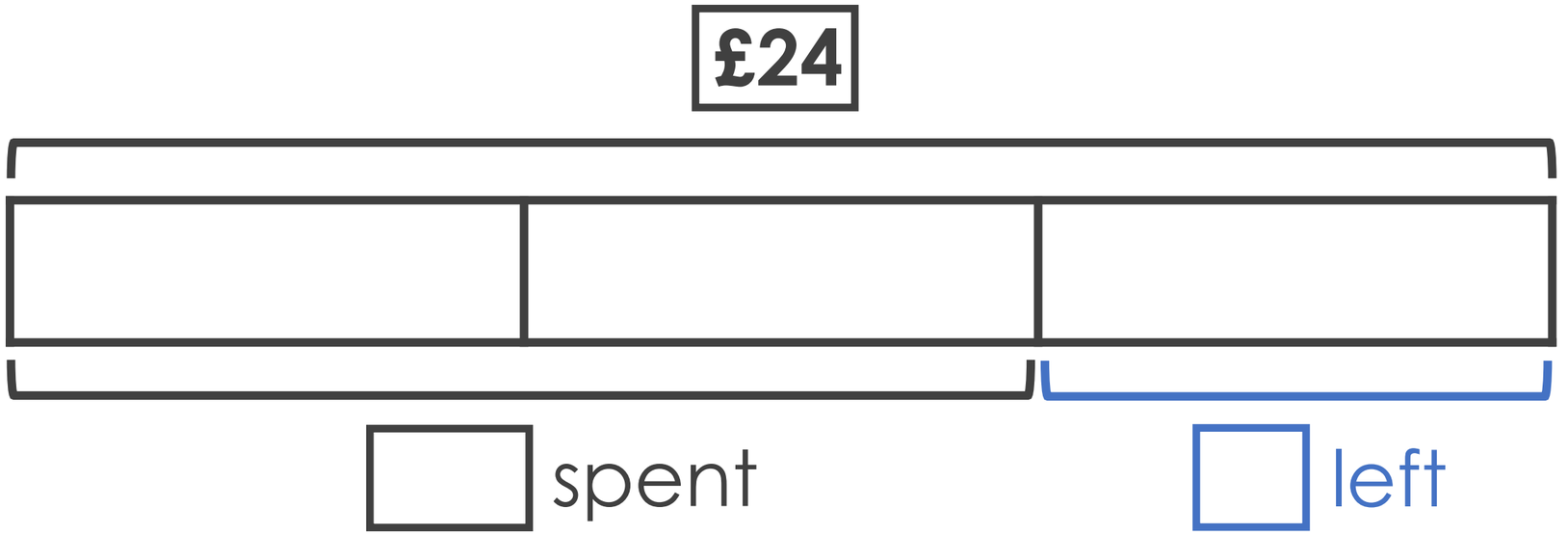
Then, he spent $\frac{2}{3}$ of his money on a t-shirt.

How much money did Ben have left?

Ben had **£24**.

Then, he spent $\frac{2}{3}$ of his money on a t-shirt.

How much money did Ben have left?



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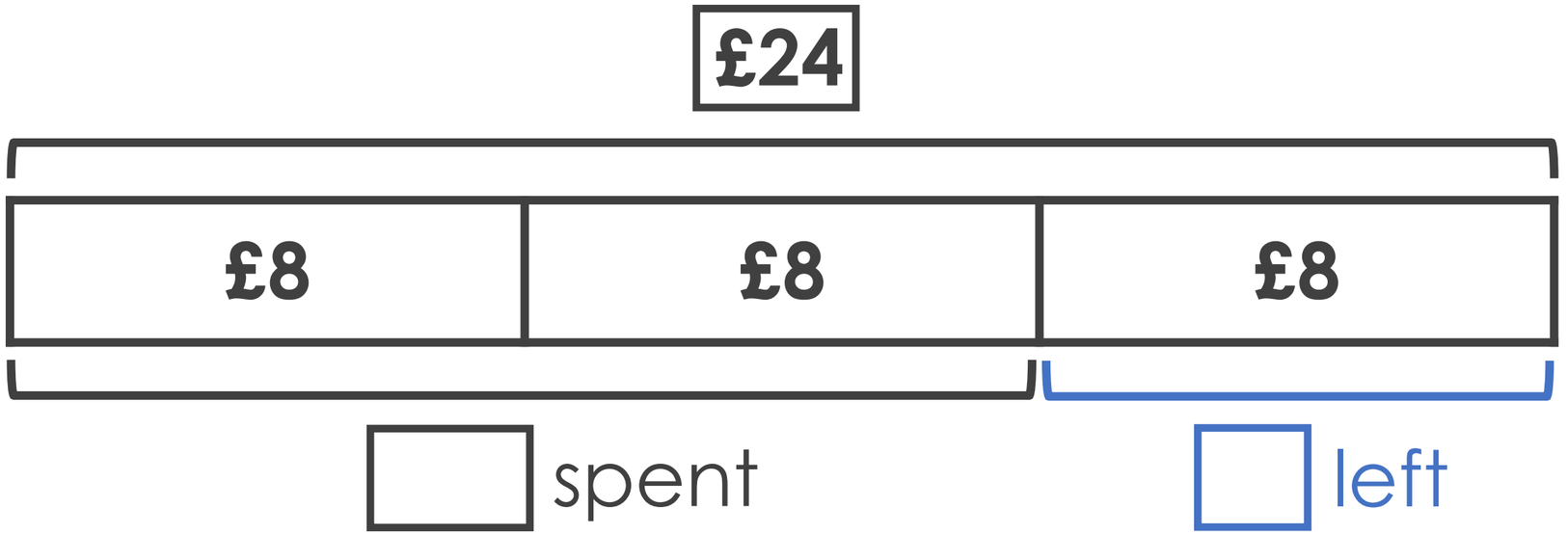

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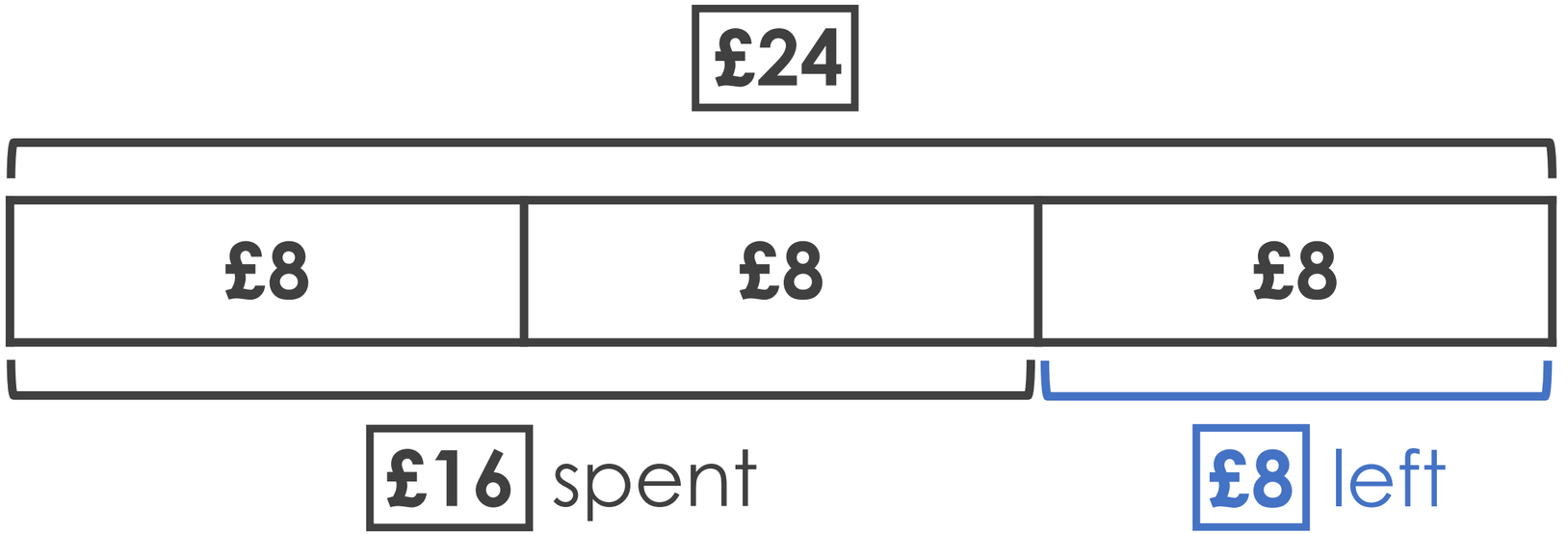
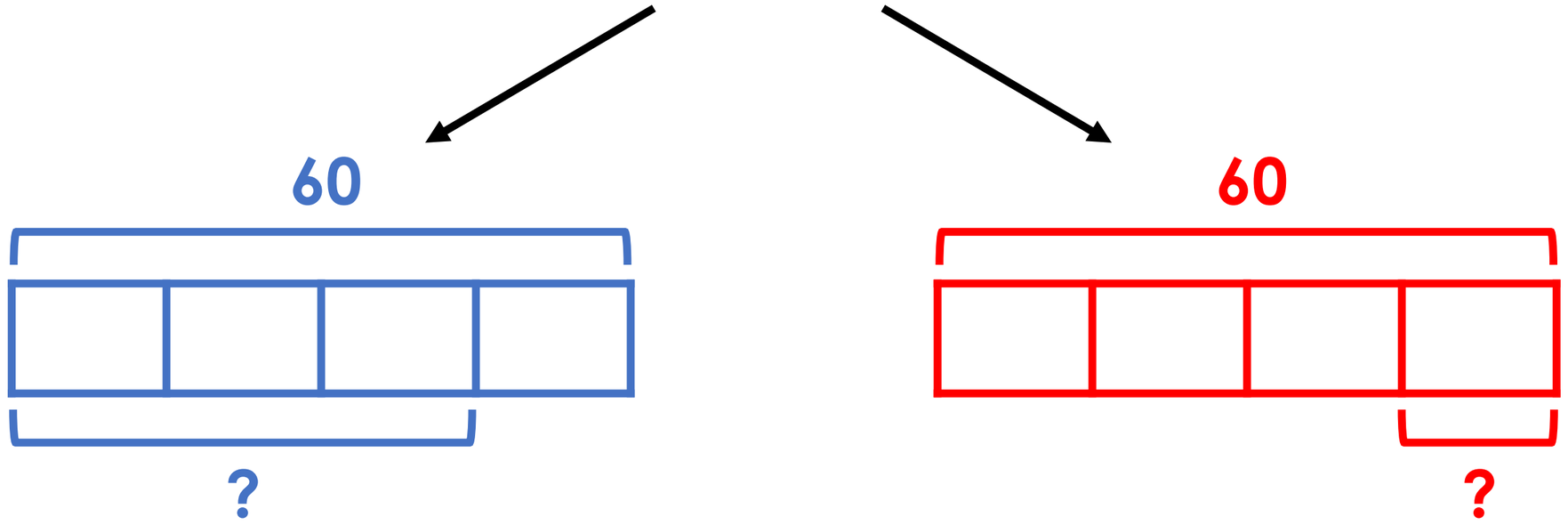


Zara's book is **60** pages long.

Zara has read $\frac{3}{4}$ of her book.

How many pages does Zara have left to read?

Which bar model represents the question?

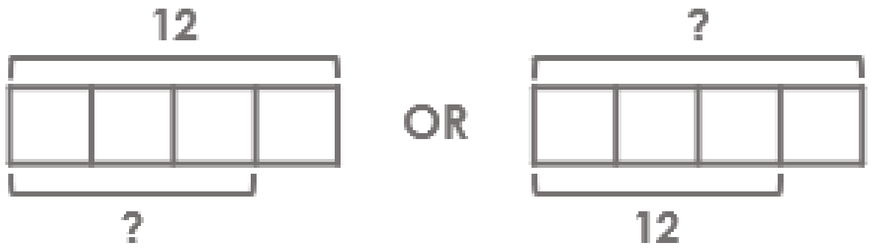


Fractions of a Quantity

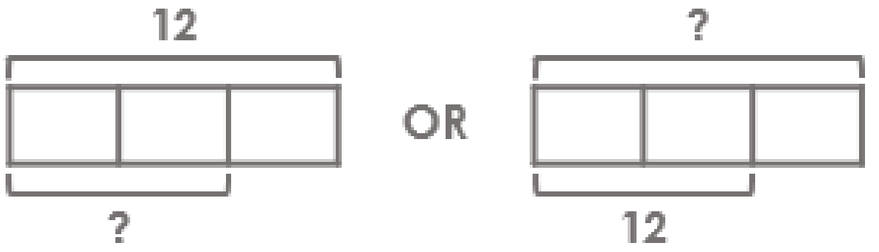
Task A

Which bar model correctly represents each question?

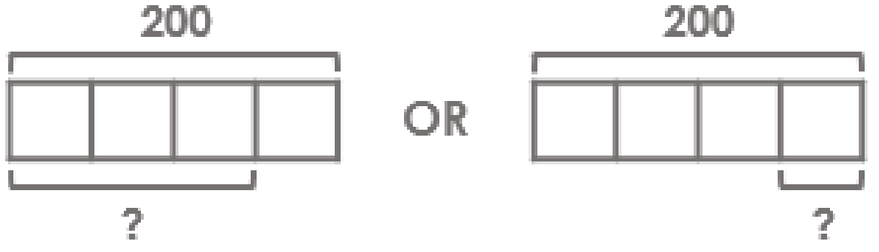
There are 12 children at the beach.
$\frac{3}{4}$ of these children are girls.
How many girls at the beach?



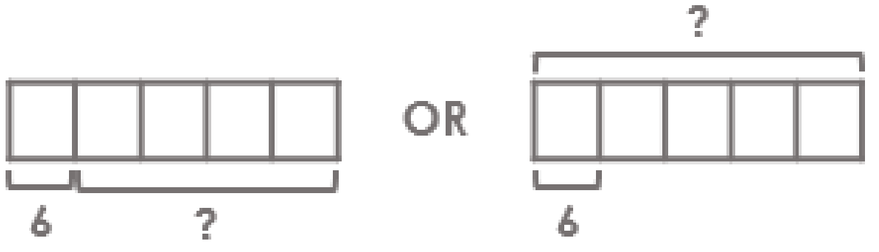
Sam plays tennis. This year, he won $\frac{2}{3}$ of his matches. Sam won 12 matches.
How many tennis matches did Sam play?



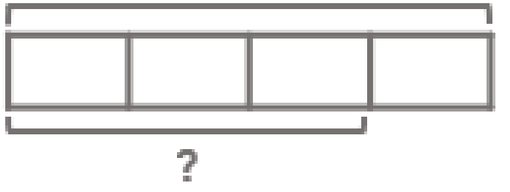
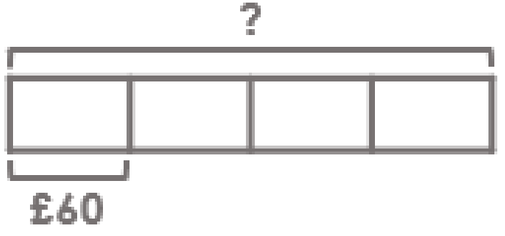
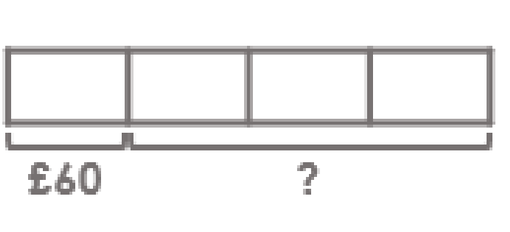
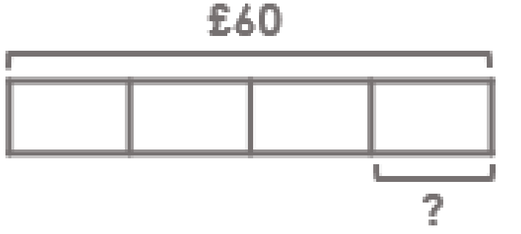
Lucy's book is 200 pages long.
Lucy has read $\frac{3}{4}$ of her book.
How many pages does Lucy have left?



6 children in the class are left-handed.
This is $\frac{1}{5}$ of the children in the class.
How many right-handed children in the class?



Cut out. **Match each question to the appropriate bar model.**

Kam had £60. He spent $\frac{3}{4}$ of his money on a coat. **What did the coat cost?**	Jo spent $\frac{1}{4}$ of her money at the shop. She had £60 left. **How much did Jo spend?**	Max spent $\frac{1}{4}$ of his money on a £60 pram. **How much money did Max have?**
Zoe had £60. She spent $\frac{3}{4}$ of her money on a bike. **How much money did she have left?**	Roy spent $\frac{3}{4}$ of his birthday money on a £60 toy robot. **How much birthday money did Roy have?**	Fay spent £60 at the shop. She has $\frac{3}{4}$ of her money left. **How much money does Fay have left?**
A 	**B** 	**C** 
D 	**E** 	**F** 

Fractions of a Quantity

Task C

Question	Complete the bar model and answer:
(a) Tom has £30. He spends $\frac{3}{5}$ of his money on a toy. **How much does the toy cost?**	
(b) There are 30 coins on the table. $\frac{3}{5}$ are showing heads. **How many are showing tails?**	
(c) Jo has read $\frac{3}{5}$ of her book. She has read 30 pages. **How many pages long is Jo's book?**	

Fractions of a Quantity

Task D

(a) $\frac{1}{5}$ of 420 =

(b) $\frac{1}{6}$ of 420 =

(c) $\frac{1}{7}$ of 420 =

(d) 6 plums weigh 420g. Zack eats one plum.

What is the weight of the remaining plums?

(e) $\frac{5}{6}$ of the 420 children in the school are right-handed.

How many left-handed children are there in the school?

(f) Joy has read $\frac{2}{5}$ of her 420-page book.

How many pages does she have left to read?

(g) Adam used $\frac{5}{7}$ of the sugar from the pack in the cake.
There were 420g sugar left in the pack.

How many grams of sugar are there in the cake?

(h) For every 5 women at the concert, there were 2 men.
There were 420 men at the concert.

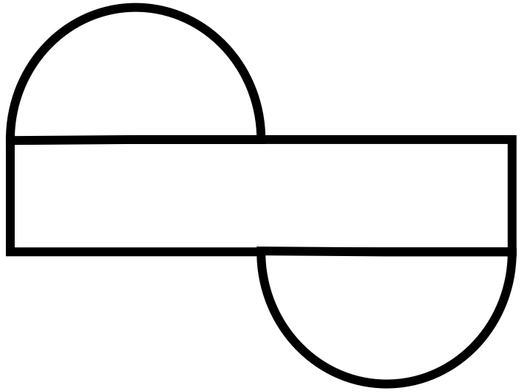
How many women were there at the concert?

Extension: *Compare questions (g) and (h).*

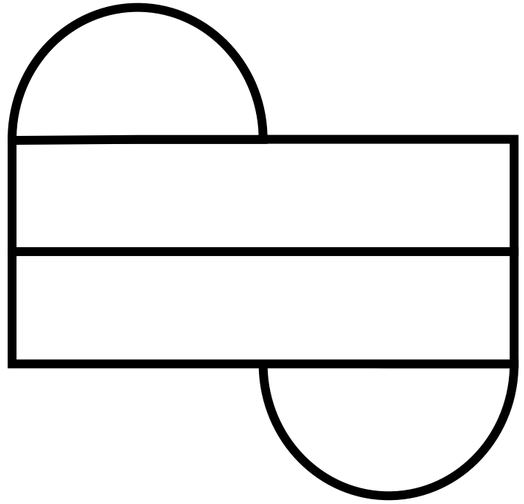
Compare the Info

Build 1

The patterns are made with identical rectangles and semi-circles.



Pattern A = 50

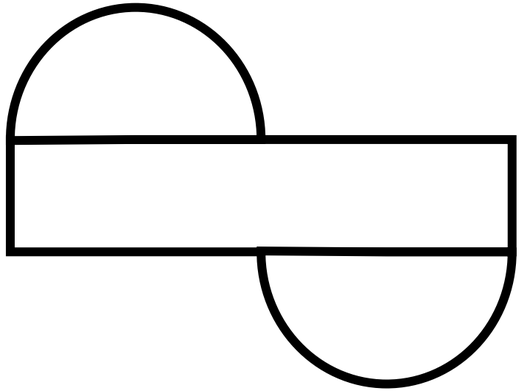


Pattern B = 70

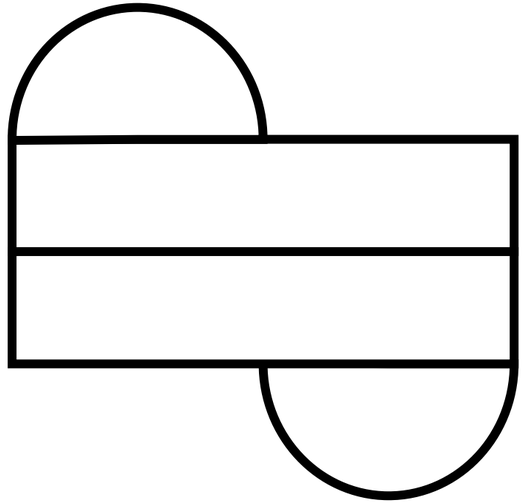
Compare the Info

Build 1

The patterns are made with identical rectangles and semi-circles.



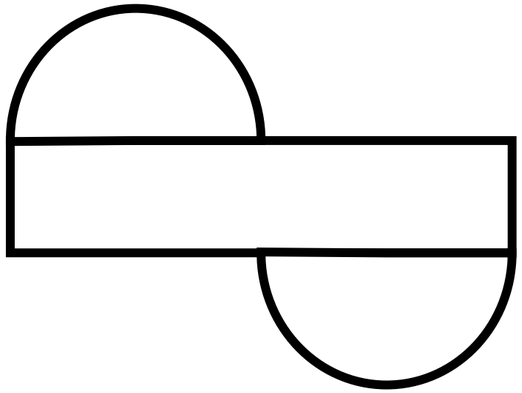
Pattern A = 50



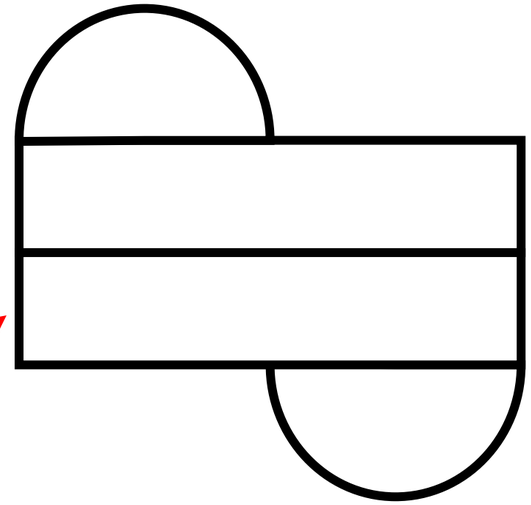
Pattern B = 70

=

The patterns are made with identical rectangles and semi-circles.



Pattern A = 50

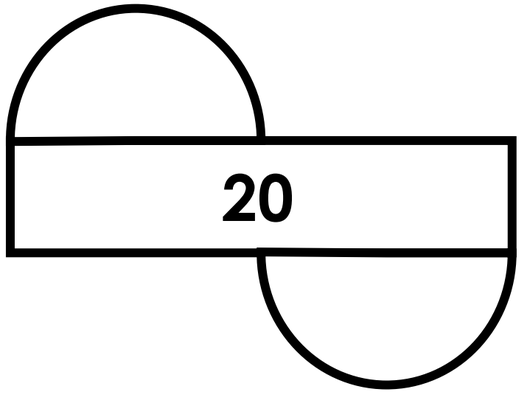


One extra rectangle, 20 more

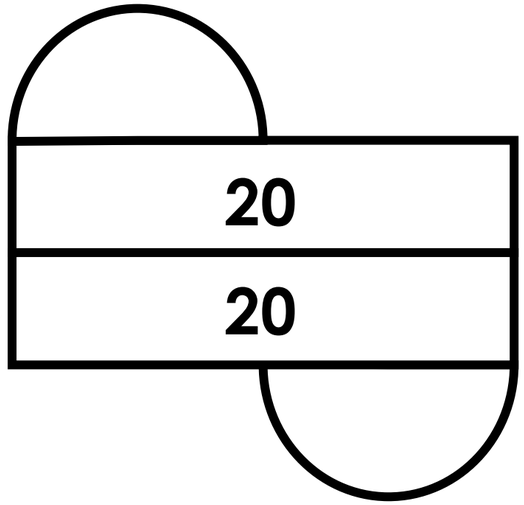
Pattern B = 70

= 20

The patterns are made with identical rectangles and semi-circles.

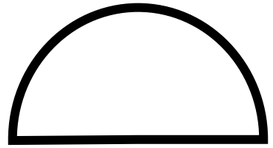


Pattern A = 50



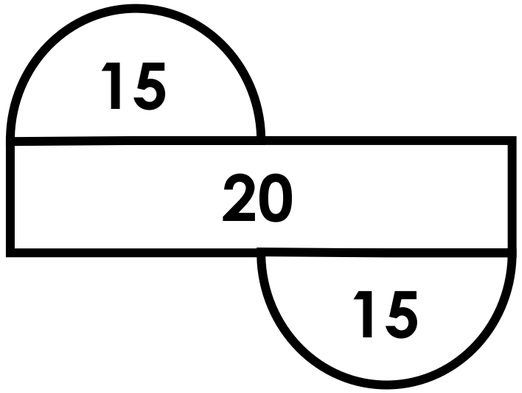
One extra rectangle, 20 more → **Pattern B = 70**

= 20

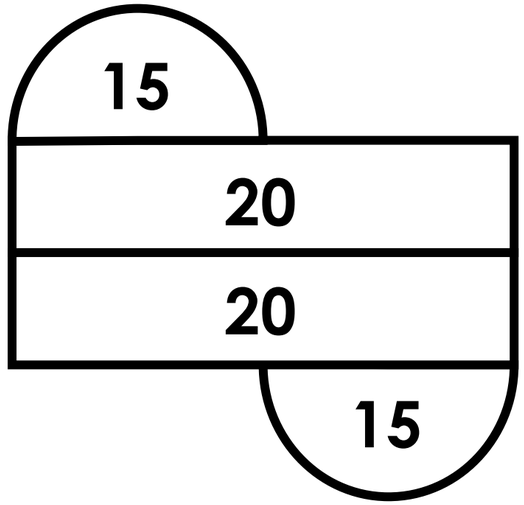


=

The patterns are made with identical rectangles and semi-circles.



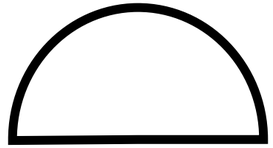
Pattern A = 50



One extra rectangle, 20 more

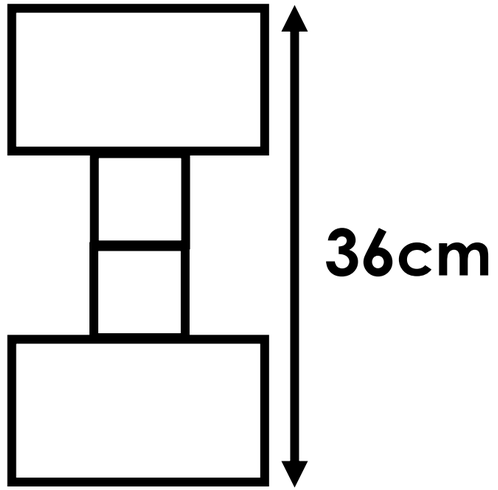
Pattern B = 70

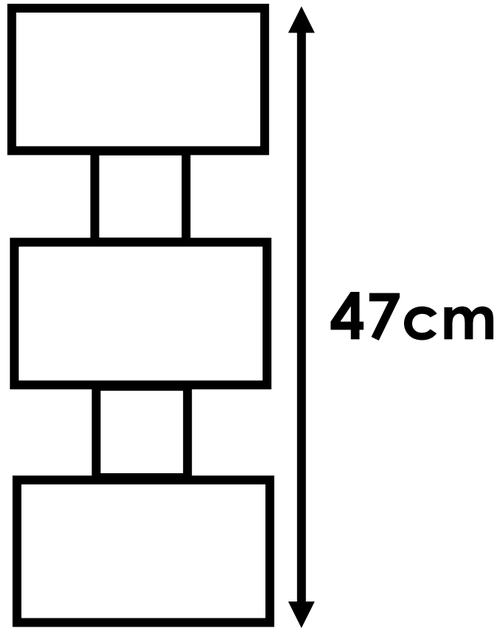
= 20



= 15

The towers are made with identical squares and identical rectangles.



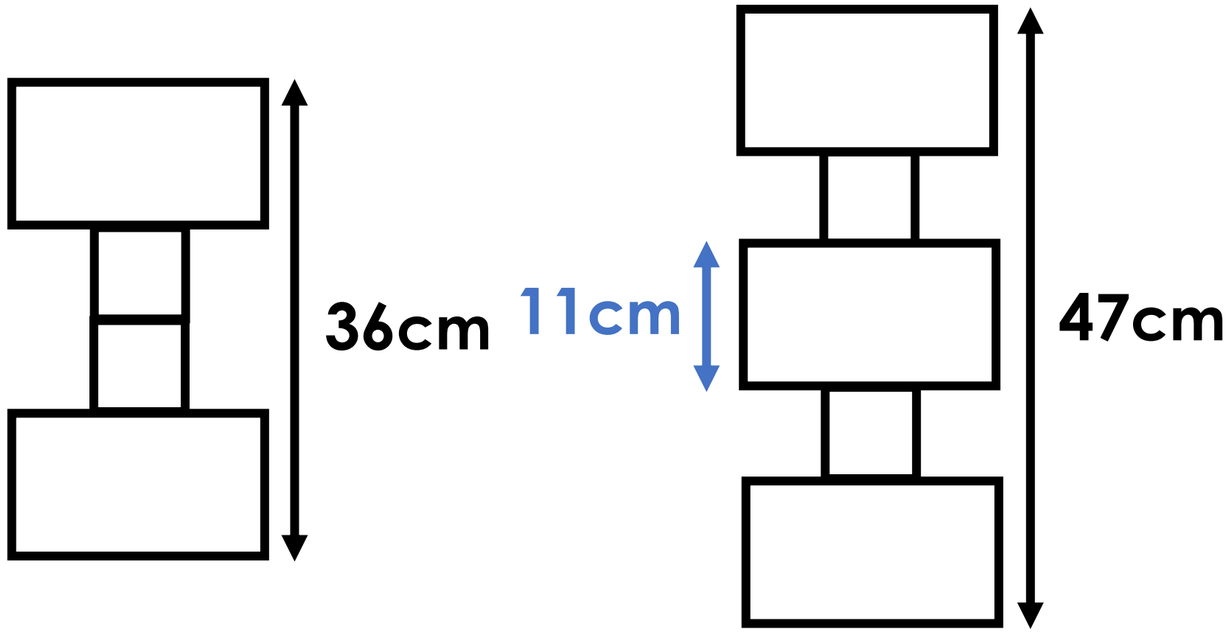


Calculate the height of a rectangle and the height of and a square.

Compare the Info

Build 2

The towers are made with identical squares and identical rectangles.

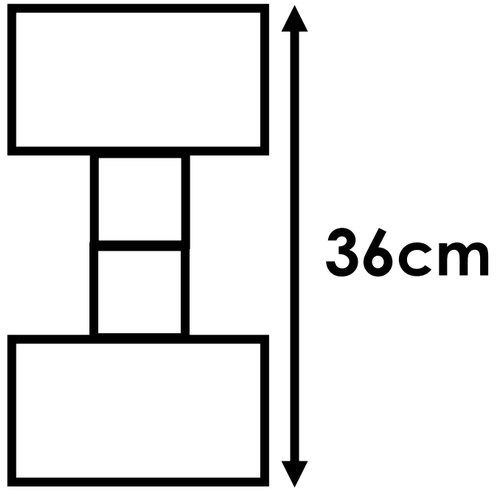


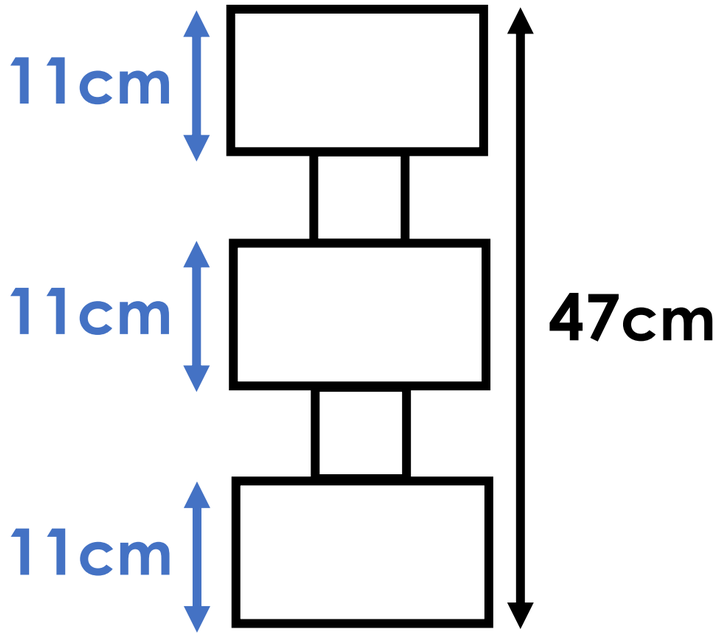
Calculate the height of a rectangle and the height of and a square.


=

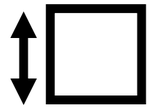

=

The towers are made with identical squares and identical rectangles.





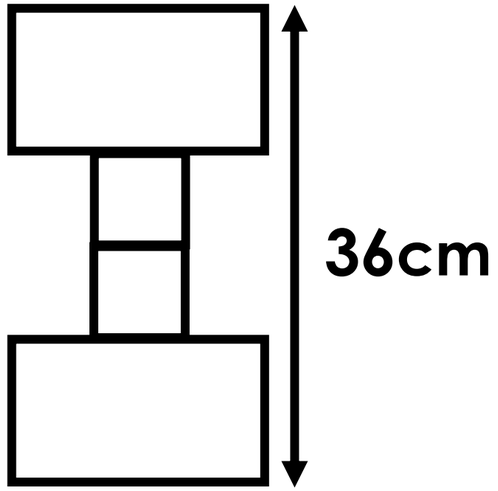
Calculate the height of a rectangle and the height of and a square.

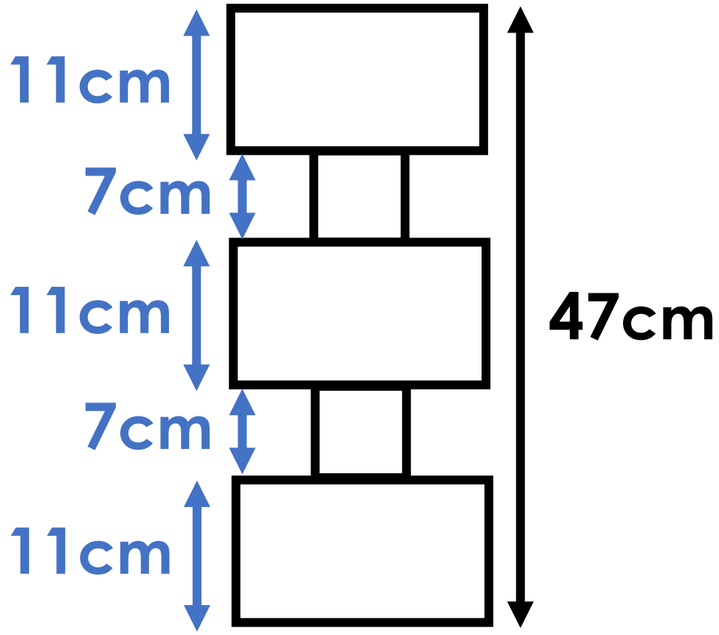


Compare the Info

Build 2

The towers are made with identical squares and identical rectangles.





Calculate the height of a rectangle and the height of and a square.

3 adults and **2** children go to the show.
They pay ☐ for their tickets.

2 adults and **2** children go to the show.
They pay ☐ for their tickets.

What is the cost of a child ticket to the show?

Child ticket = ☐

Compare the Info

Build 2

3 adults and **2** children go to the show.
They pay **£58** for their tickets.

2 adults and **2** children go to the show.
They pay **£44** for their tickets.

What is the cost of a child ticket to the show?

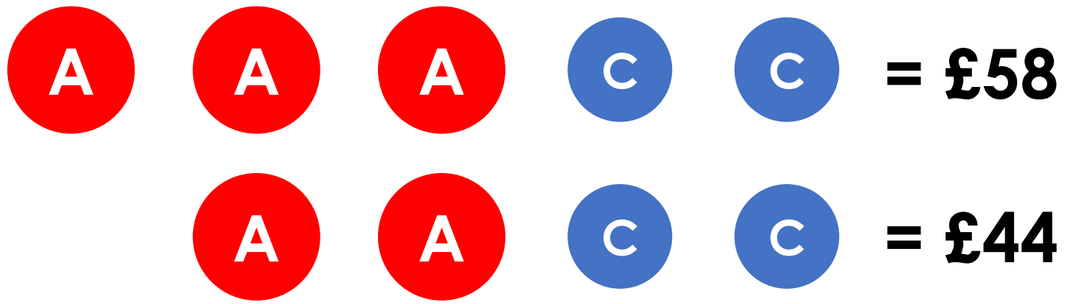
Child ticket = ☐

3 adults and **2** children go to the show.
They pay **£58** for their tickets.

2 adults and **2** children go to the show.
They pay **£44** for their tickets.

What is the cost of a child ticket to the show?

Child ticket = ☐



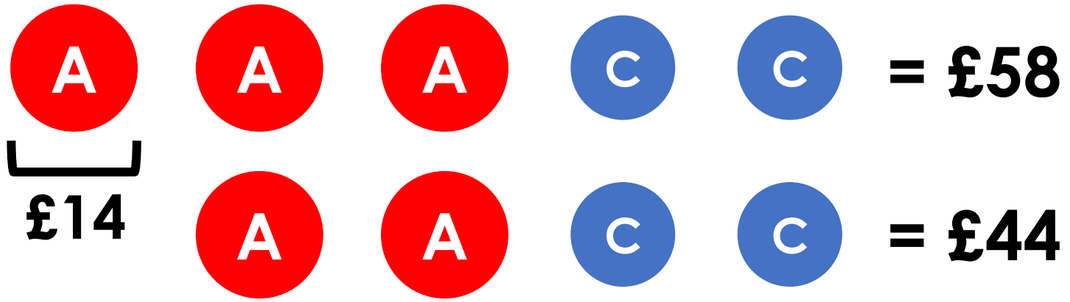
3 adults and **2** children go to the show.
They pay **£58** for their tickets.

2 adults and **2** children go to the show.
They pay **£44** for their tickets.

What is the cost of a child ticket to the show?

Child ticket = ☐

A = £14



Compare the Info

Build 2

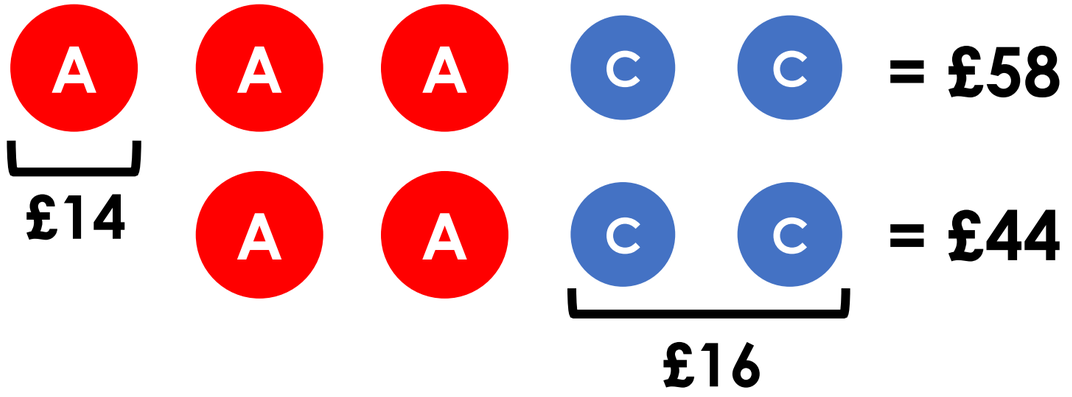
3 adults and **2** children go to the show.
They pay **£58** for their tickets.

2 adults and **2** children go to the show.
They pay **£44** for their tickets.

What is the cost of a child ticket to the show?

Child ticket = ☐

A = £14



3 adults and **2** children go to the show.
They pay **£58** for their tickets.

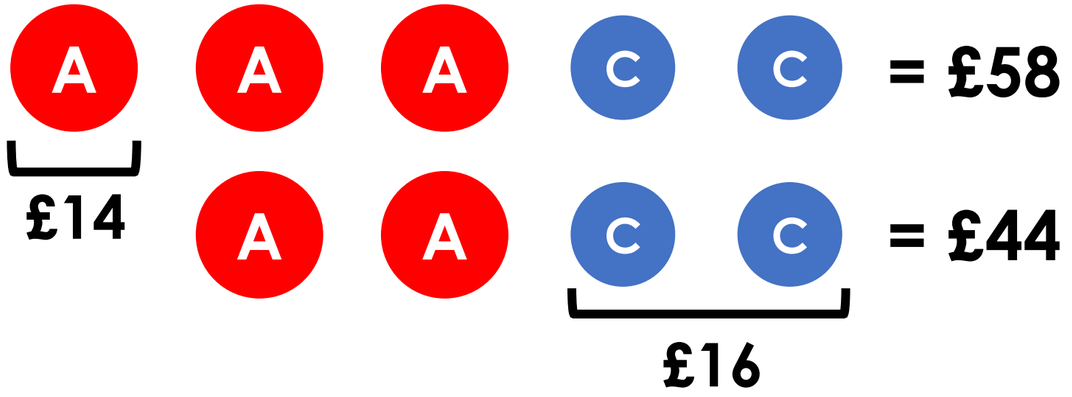
2 adults and **2** children go to the show.
They pay **£44** for their tickets.

What is the cost of a child ticket to the show?

Child ticket = £8

A = £14

C = £8



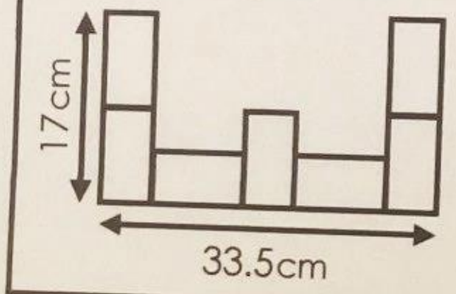
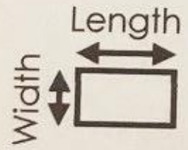
Compare the Info

Task B Version 1

Question	Complete the bar model and answer:
3 apples and **2** pears cost **£1.40** **2** apples and **2** pears cost **£1.10** **What is the cost of a pear?**	***Clue:*** *Start by calculating the cost of an apple* apple = 30p pears = 50p → ÷ 2 pear = 25p
Pattern A = 30 **Pattern B** = 52 = 8 = 11	***Clue:*** *Pattern B has 2 more triangles than Pattern A* 30 - 22 = 8 ×2 triangles = 22 → ÷ 2 = 11
The rectangles are identical. 18cm, 33cm Length, Width Length = 9cm Width = 5	***Choose:*** *Start by calculating the* ***length*** ***OR width*** 18 ÷ 2 = 9 33 - 18 = 15 3 × 5 = 15

Compare the Info

Task B Version 2

Question	~~Complete the bar model and answer:~~
3 apples and **2** pears cost **£1.56** **2** pears and **1** apple costs **84p** **What is the cost of a pear?** ↳ 24p ↲	£1.56 − 84p = 72p 84p − 36p = 48p £1.56 − 0.84 = 72p 72p ÷ 2 = 36p 36p
Pattern A = 24 **Pattern B** = 75 ▭ = 7 △ = 17	75 − 24 = 51 24 − 17 = 7 17 × 3 = 51
The rectangles are identical.   **Length =** 8.5cm **Width =** 5.5cm	17 ÷ 2 = 8.5 33.5 − 17.0 = 16.5 16.5 ÷ 3 = 5.5 5.5 × 3 = 16.5

There are 28 pupils in a class.

The teacher has 8 litres of orange juice.

She pours 225 millilitres of orange juice for every pupil.

How much orange juice is left over?