SURNAME ..... FIRST NAME .....

JUNIOR SCHOOL ..... SENIOR SCHOOL .....

ISEB

Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 11+

MATHEMATICS

Monday 20 January 2020

Please read this information before the examination starts.

- This examination is 60 minutes long.
- Please try **all** the questions.
- All working should be written on the paper.
- Tracing paper may be used.
- Calculators are not allowed.
- **Answers given as fractions should be reduced to their simplest form.**

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1. Write down the answers to these questions.
(You may work them out in your head.)

a) $127 + 48$

Answer: ..... [1]

b) 28×5

Answer: ..... [1]

c) $328 \div 8$

Answer: ..... [1]

d) six-hundred and six more than six-hundred and six

Answer: ..... [1]

e) $835 \div 100$

Answer: ..... [1]

f) $4^2 - 21$

Answer: ..... [1]

g) $2019 - 1089$

Answer: ..... [1]

h) $4 \times 23 \times 5$

Answer: ..... [1]

2. A sequence of numbers starts

20 23 26 29 32 35

a) From the sequence, write down

i) two prime numbers

Answer: ....., ... [1]

ii) two multiples of 4

Answer: ....., ... [1]

iii) two factors of 140

Answer: ....., ... [1]

b) Write down the next three numbers in the sequence.

Answer: ....., ..., ... [1]

3. a) Peter is going to see a film which starts at 6.35 p.m.
The film lasts 109 minutes.

At what time will the film end?

Answer: ..... [2]

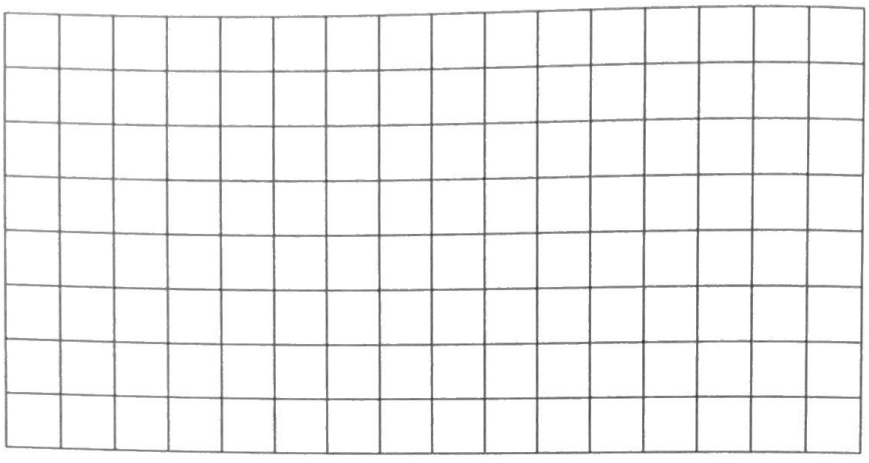
b) The year in which the film was made is shown in Roman numerals as MCMLX

In which year was the film made?

Answer: ..... [2]

4. India is given £45 for her birthday.
She buys a book for £7.85 and some jeans for £18.99

How much of her birthday money does she have left?



Answer: £ ..... [3]

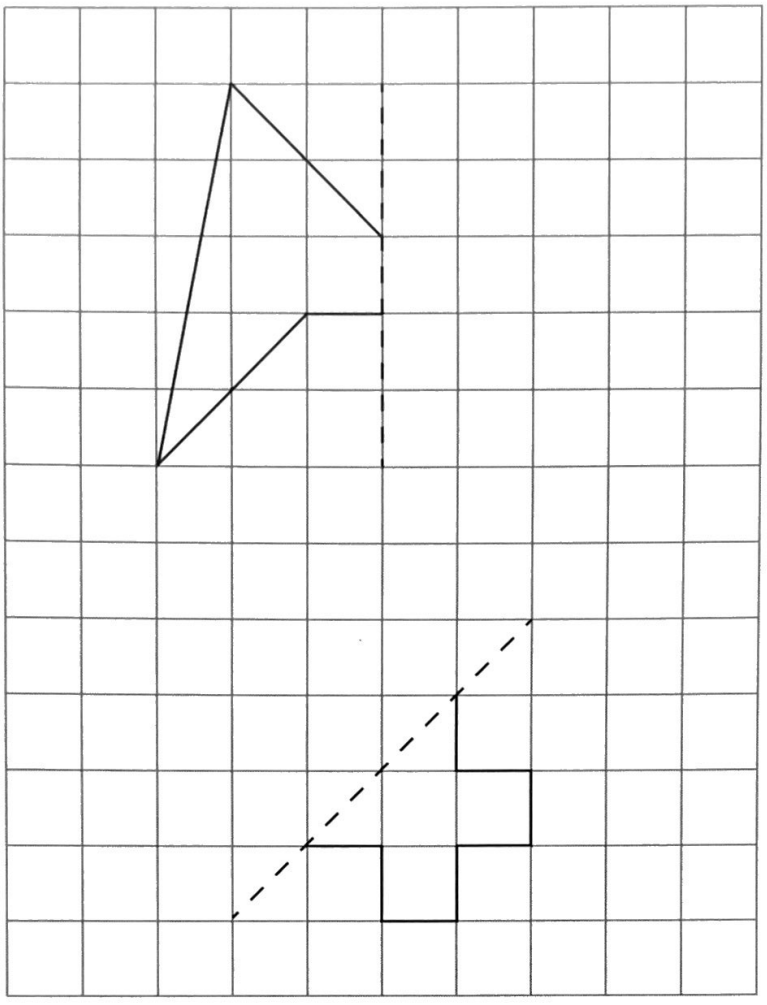
5. Fill in the boxes below to make the following statements true.

a) $3 + \square \times 7 = 17$ [1]

b) $24 \times 31 = 12 \times \square$ [1]

c) $233 + 234 = \square + 236$ [1]

6. Draw the reflection of each shape in the dashed mirror line.



[2]

7. Given **249 × 38 = 9462** work out the missing numbers below.

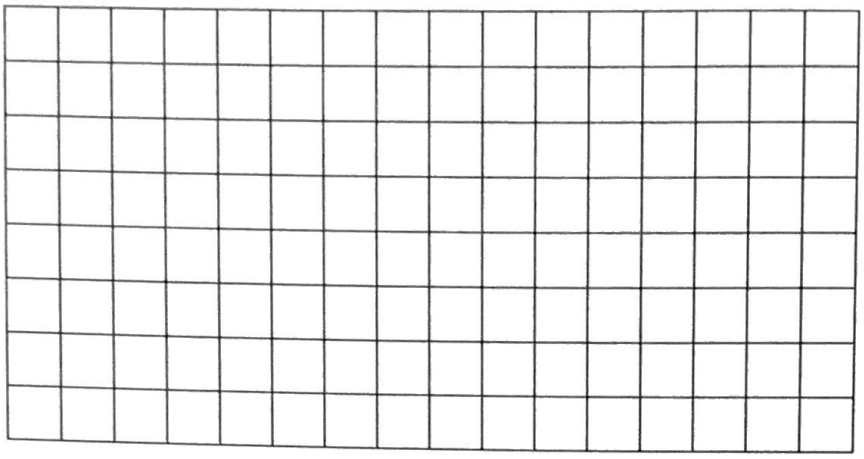
a) 249 × ..... = 94 620 [1]

b) 2.49 × 38 = ... [1]

c) 946.2 ÷ ..... = 249 [2]

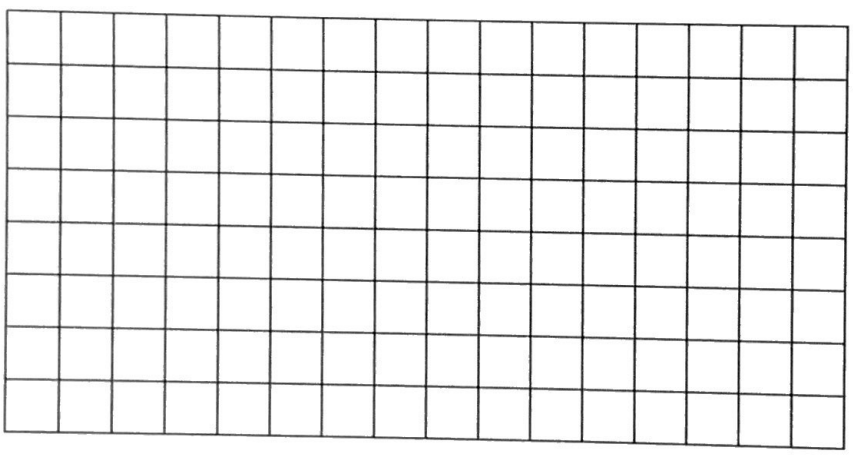
8. Work out

a) 9683 + 775



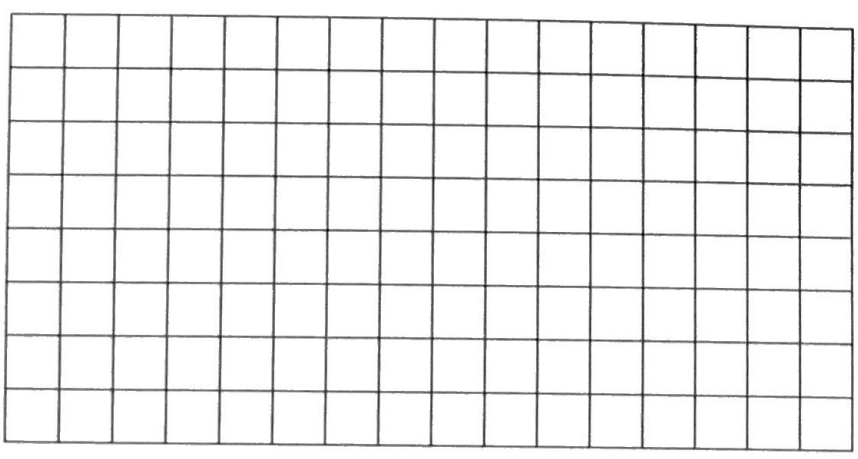
Answer: ..... [2]

b) 6437 – 594



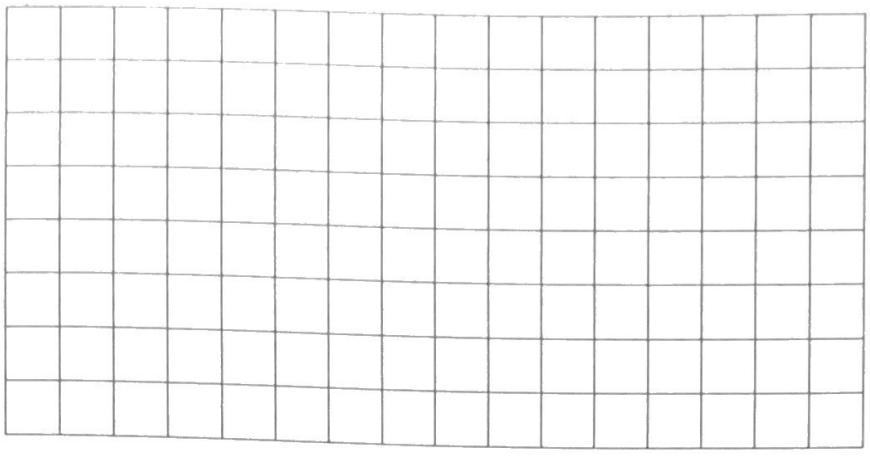
Answer: ..... [2]

c) 47 × 583



Answer: ..... [3]

d) $5216 \div 8$



Answer: ..... [2]

9. a) In these sequences, the numbers go up or down in equal steps.

Write down the missing terms in each sequence.

i) ..... 12 7 2 ..... [2]

ii) $1\frac{3}{4}$ $2\frac{1}{2}$ .... $4\frac{3}{4}$ [2]

b) Find the sum of the numbers in the 22nd bracket.

(1, 3) (2, 4) (3, 5) (4, 6) (5, 7) (6, 8)

Answer: ..... [2]

10. 48 children are going on a school trip.

They choose a packed lunch from three options: ham sandwich, chicken wrap or salad roll.

one third choose the ham sandwich

25% of the **remainder** of the children choose the salad roll

the rest choose the chicken wrap

a) How many children choose the ham sandwich?

Answer: ..... [1]

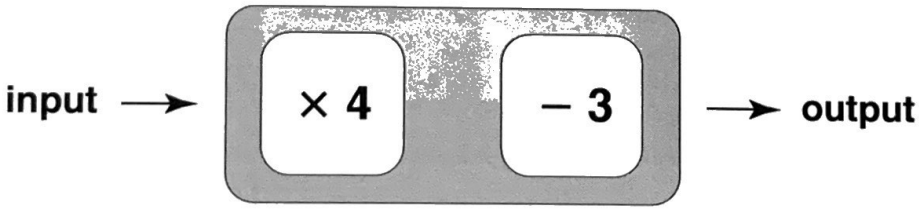
b) How many children choose the salad roll?

Answer: ..... [2]

c) What fraction of the 48 children choose the chicken wrap?

Answer: ..... [2]

11. Here is a function machine:



Complete the table below.

input	output
5	17
7	
	33

[2]

12. a) Arrange these fractions in order from **smallest** to **largest**.

$\frac{2}{3}$ $\frac{5}{12}$ $\frac{5}{6}$ $\frac{11}{12}$

Answer: ..... , ... , ... , ... [2]

b) Work out

i) $\frac{2}{5} + \frac{3}{10}$

Answer: ..... [2]

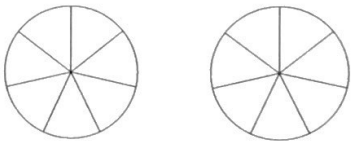
ii) $1\frac{1}{3} - \frac{5}{6}$

Answer: ..... [2]

iii) $3 \times \frac{4}{7}$

Write your answer as a mixed number.

(You may use the diagram to help you.)



Answer: ..... [2]

c) How many ninths are there in 4 wholes?

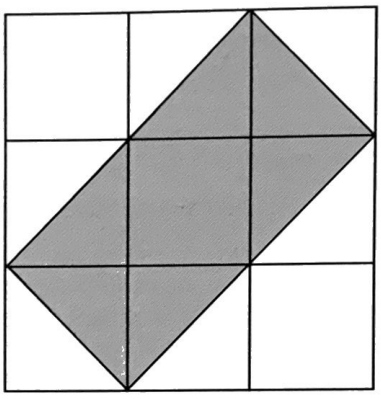
Answer: ..... [1]

13. Paula ate $\frac{3}{5}$ of a bar of chocolate.
60 grams of chocolate remained.

What was the original mass of the chocolate bar?

Answer: ..... g [2]

14. What fraction of the large square below is shaded?



Answer: ..... [2]

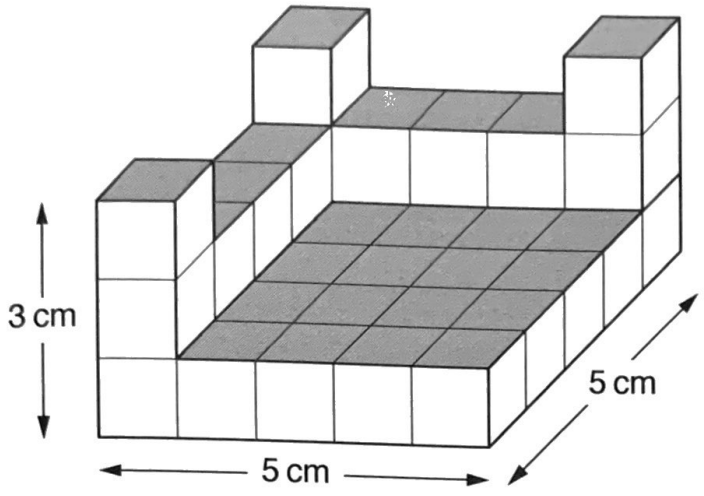
15. Maria needs 12 pizzas to feed 30 people.

How many pizzas will she need to feed 35 people?

Answer: ..... [2]

16. This shape is made from centimetre cubes.

not to scale



a) How many more cubes do you need to add to make a cuboid of width 5 cm, length 5 cm and height 3 cm?

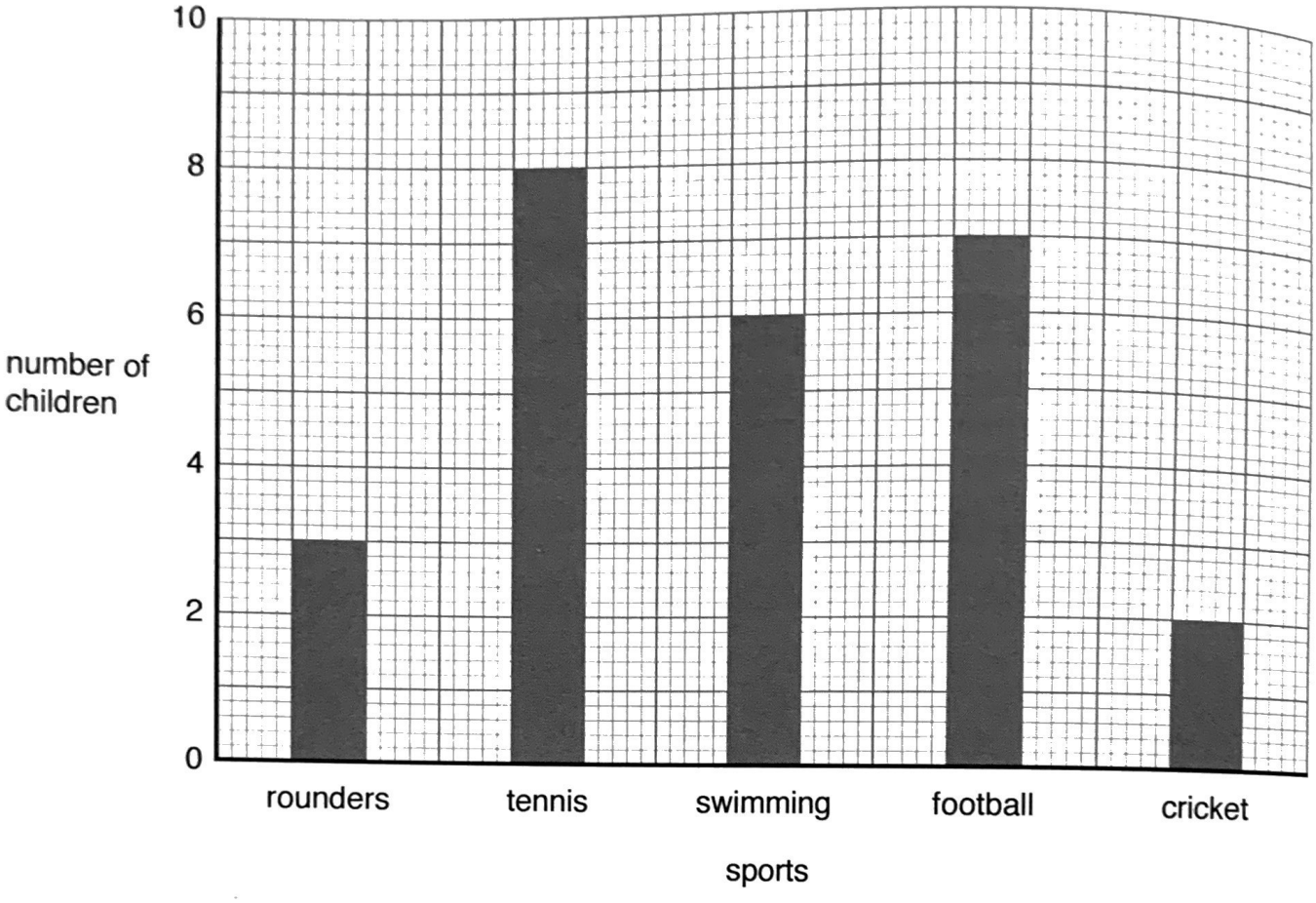
Answer: ..... [2]

b) What is the volume of the cuboid?

Give your answer with the correct units.

Answer: ..... [2]

17. The pupils in Form 6A were asked which sport they enjoy the most.
Their choices are given in the bar graph below.



a) How many more pupils chose football than rounders?

Answer: ..... [1]

b) Three pupils were absent on the day the question was asked.

How many pupils are in Form 6A?

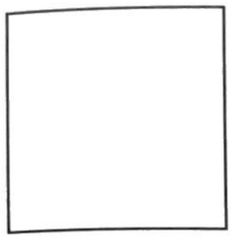
Answer: ..... [2]

18. The diagrams below show a square and a triangle.

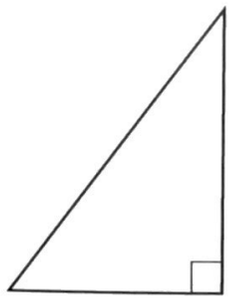
The square has sides of length 4 cm.

The triangle has a base of length 4 cm.

The square and the triangle have the same area.



4 cm



4 cm

Work out the height of the triangle.

Answer: ..... cm [2]

19. Ada has a box of chocolates.

The chocolates can be shared equally between 2, 3 or 5 people, with no remainder.

What is the smallest possible number of chocolates in the box?

Answer: ..... [2]

20. Some children are throwing bean bags.

Fern throws her bean bag 5.6 metres, Gabriel throws his 4.8 metres and Hector throws his 7.3 metres.

a) What is the mean distance thrown?

Answer: ..... m [2]

The three children are joined by their friend Isla.

After Isla throws her bean bag, the new mean is 6.0 metres.

b) How far did Isla throw her bean bag?

Answer: ..... m [2]

Jordan throws his bean bag 6.37 metres.

c) Write 6.37 metres in millimetres.

Answer: ..... mm [1]

21. 2 packets of crisps and 2 drinks cost £1.50

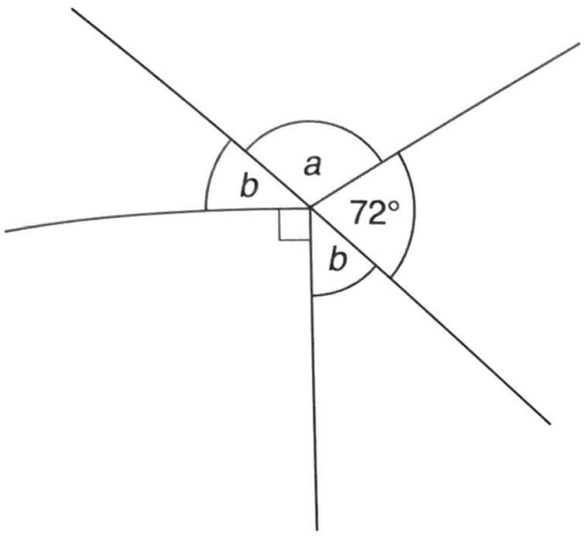
2 packets of crisps and 1 drink cost £1.10

How much would it cost to buy 3 packets of crisps and 4 drinks?

Answer: £ ..... [3]

22. Work out the size of each of the missing angles in the diagrams below.

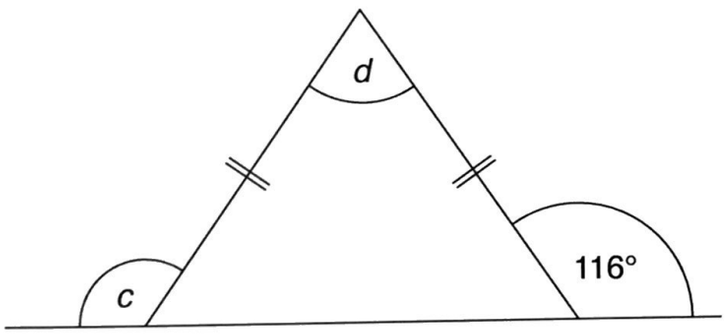
a)



Answer: a = ... °

b = ... ° [3]

b)



Answer: c = ... °

d = ... ° [2]

23. John, Robert and Edward are given some money by their grandmother.
John receives twice as much as Robert and three times as much as Edward.

If they are given £99 in total, how much does Edward get?

Answer: £ ..... [3]

24. Letters can represent numbers.

If $a = 3$ $b = 5$ and $c = 10$ work out the value of

a) $a + b - c$

Answer: ..... [1]

b) $(a \times b) + (a \times c)$

Answer: ..... [2]

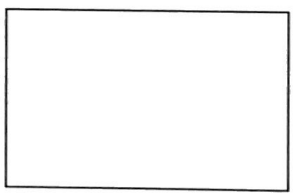
c) $2a + \frac{c}{b}$

Answer: ..... [2]

25. A rectangle has an area of $60\,cm^2$.
Its length is 11 cm more than its width.

What is the perimeter of the rectangle?

not to scale



Answer: ..... cm [3]

(Total: 100 marks)