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

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

ISEB

Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 11+

MATHEMATICS

Monday 2 November 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 calculations.
(You may work them out in your head.)

a) 56 + 29

Answer: ..... [1]

b) 1001 − 561

Answer: ..... [1]

c) 99 × 4

Answer: ..... [1]

d) 624 ÷ 6

Answer: ..... [1]

e) 0.057 × 100

Answer: ..... [1]

f) half of 49

Answer: ..... [1]

g) 20% of 120

Answer: ..... [1]

h) 4 − 9

Answer: ..... [1]

2. Write down

a) a square number less than 10

Answer: ..... [1]

b) a prime number between 10 and 20

Answer: ..... [1]

c) a factor of 88 between 20 and 30

Answer: ..... [1]

d) a multiple of 13 between 30 and 40

Answer: ..... [1]

3. Round the following numbers:

a) 67.5 to the nearest 10

Answer: ..... [1]

b) 850 to the nearest hundred

Answer: ..... [1]

c) 4981.3 to the nearest whole number

Answer: ..... [1]

4. Work out

a) $16 - 2 \times 4$

Answer: ..... [1]

b) $12 + 4^2 \div 2$

Answer: ..... [2]

5. For each calculation, select the answer which is the best approximation.

a) 43×49

1600 ☐ **2000** ☐ **2500** ☐ [1]

b) $2542.4 \div 4.8$

400 ☐ **500** ☐ **600** ☐ [1]

c) 51% of 6184

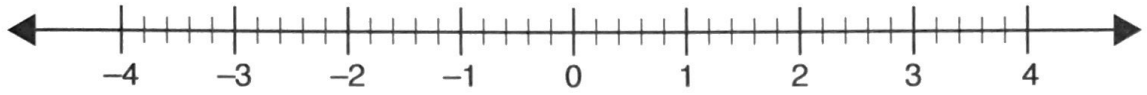
2900 ☐ **3000** ☐ **3100** ☐ [1]

d) 0.9×562.9

500 ☐ **550** ☐ **600** ☐ [1]

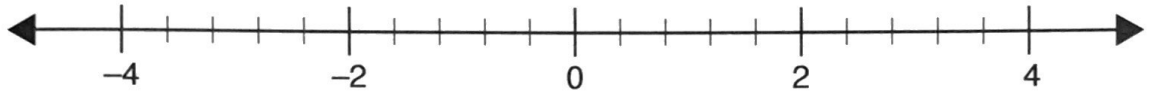
6. Look at the scales below.

a) Draw an arrow pointing to −3.8



[1]

b) Draw an arrow pointing to −1.6



[1]

7. Look at the ferry timetable below.

ferry	A	B	C	D
depart	10:40 a.m.	11:50 a.m.	12:40 p.m.	1:50 p.m.
arrive	12:15 p.m.	1:25 p.m.	2:15 p.m.	3:25 p.m.

a) How long does the ferry journey take?

Answer: ..... h ..... min [2]

b) It takes 1 hour 42 minutes for the Batts family to drive to the ferry.

They leave at 9:55 a.m.

i) At what time do they arrive at the ferry?

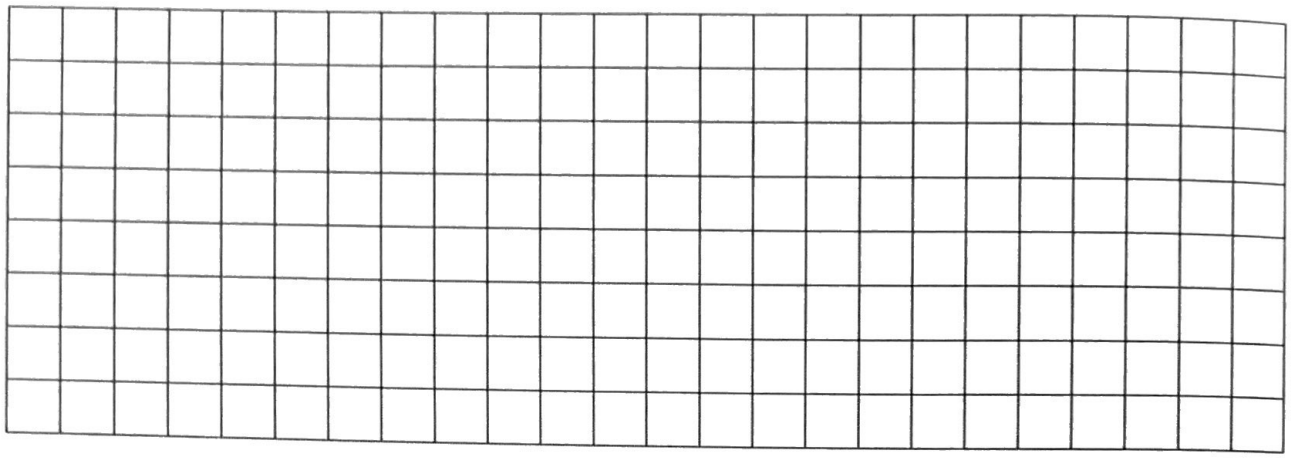
Answer: ..... [1]

ii) Which is the first ferry they can catch?

Answer: ..... [1]

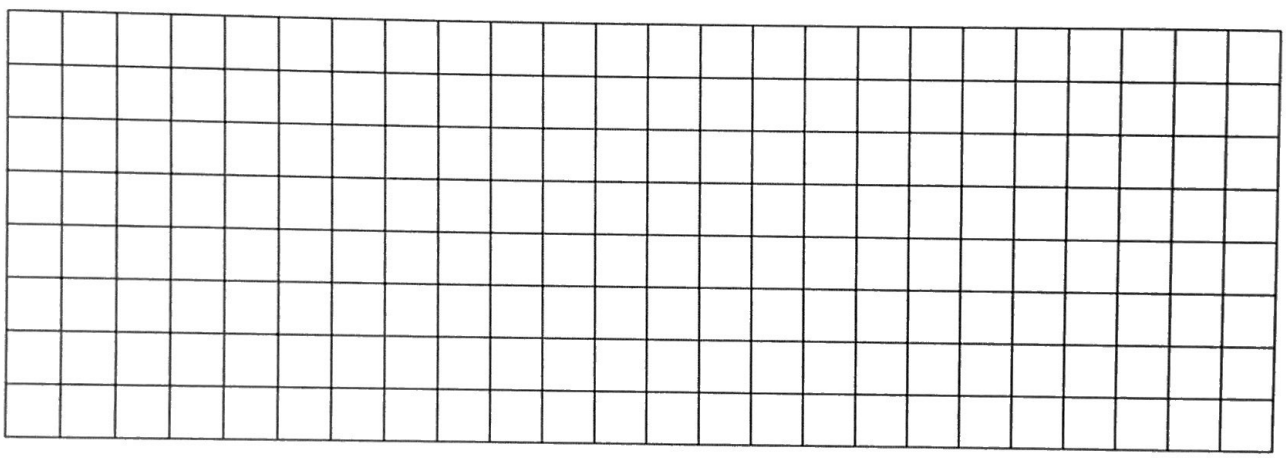
8. Work out

a) 347×53



Answer: ..... [2]

b) $516 \div 12$



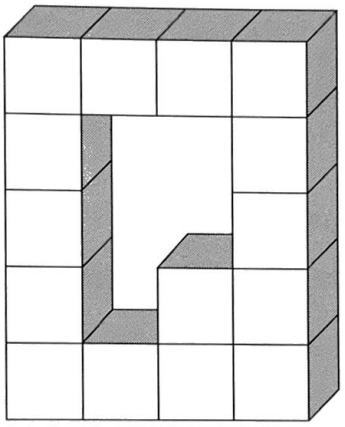
Answer: ..... [2]

9. It costs £8.99 per month to use a music streaming website.
Natasha is given £110 for her birthday.

How many months can she pay for with this money?

Answer: ..... months [2]

10. The model below is made from centimetre cubes.



Write the volume of the model.
(Include the correct unit.)

Answer: ..... [2]

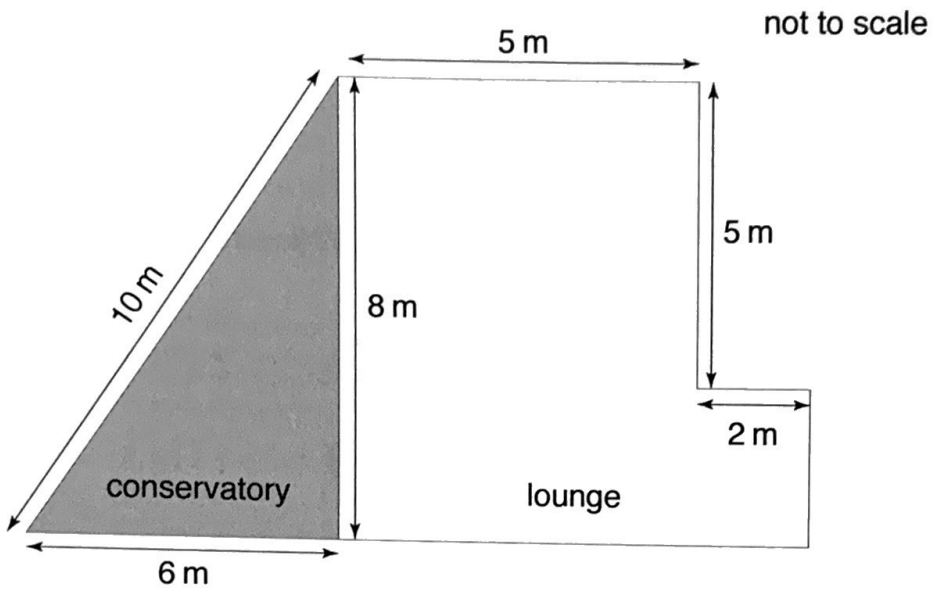
11. A house is bought for £300 000

a) The house price increases by 25%

What is the new price of the house?

Answer: £ ..... [2]

Part of the floor plan of the house is shown below.



b) Calculate the area of the conservatory.

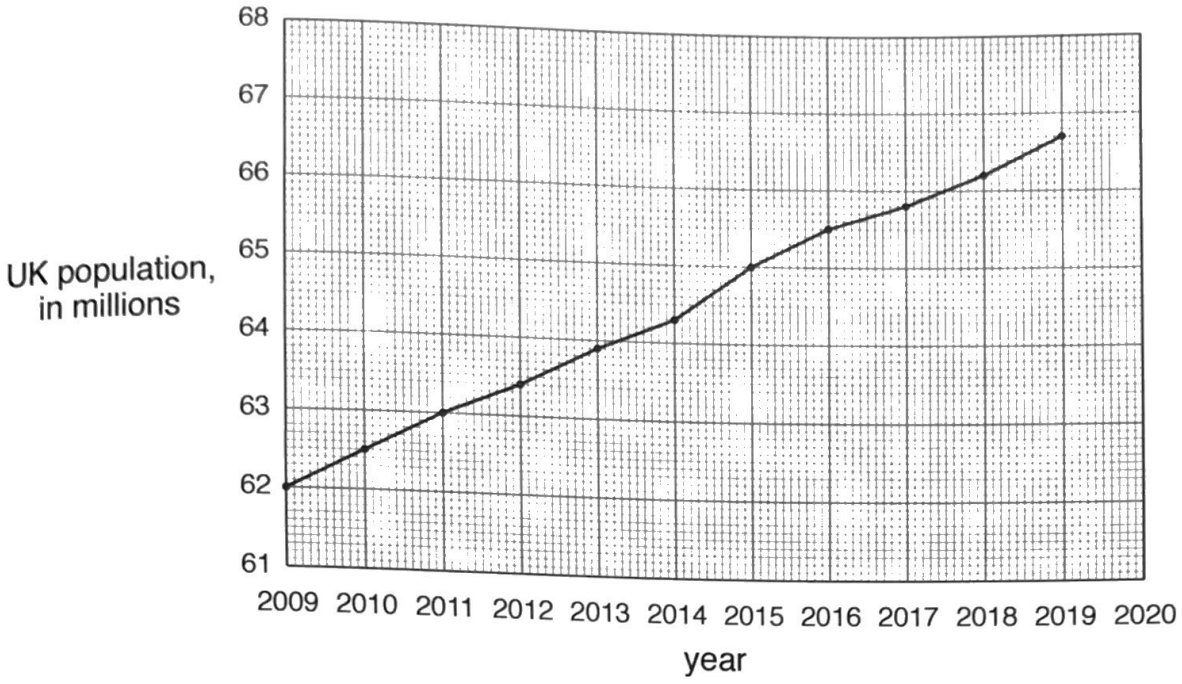
Answer: ..... m^2 [2]

c) Floor tiles cost £4 per square metre.

Calculate the total cost of floor tiles to cover the lounge floor.

Answer: £ ..... [3]

12. The graph below shows the population of the UK, in millions, at the start of each year since 2009.



a) How many people lived in the UK at the start of 2012?

Answer: ..... million [1]

b) i) At the start of 2020, the population of the UK was 67.1 million.

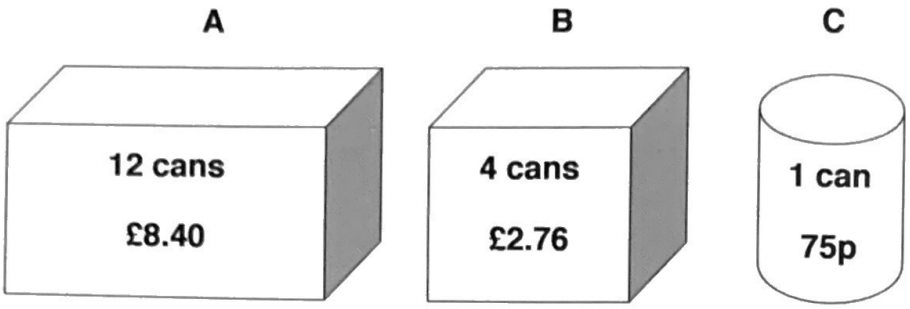
Plot this point on the graph. [1]

ii) At the start of 1960, the UK had a population of 52.4 million people.

How many more people live in the UK in 2020 than 1960?

Answer: ..... million [2]

13. *Dunston's Dog Food* is sold in different pack sizes.



a) Which is the best value for money?

Circle your answer: **A** **B** **C**

Explain how you know.

.....

..... [2]

Each can has a mass of 0.32 kilograms.

b) i) Write this mass in grams.

Answer: ..... g [1]

ii) Write the total mass of 15 cans, in kilograms.

Answer: ..... kg [2]

14. Every time Helen saves 80 pence, her grandmother adds another 30 pence to her savings.

How much did Helen put into her savings if the total is now £38.50?

Answer: £ ..... [2]

15. Here is a number sequence:

31 , 27 , 23 , 19 , ... , ...

a) i) Write the next two numbers in the sequence.

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

ii) What is the first negative number in this sequence?

Answer: ..... [2]

b) Here is a different number sequence:

13 , ... , ... , 31 , 37

Write the missing numbers in the sequence.

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

c) A different sequence follows the rule

'multiply the previous number by 3 then subtract 7'

If the third number in the sequence is 35, what is the first number in the sequence?

Answer: ..... [2]

16. Lizzy is four times as old as Mary, who is three years younger than Vicky.
The sum of their ages is 27.

How old is Vicky?

Answer: ..... [2]

17. Below are the prices of five bags of sweets in a shop.

42p **99p** **60p** **£1.50** **99p**

a) What is the **mean** price of a bag of sweets?

Answer: ..... p [2]

b) Sophie is given £4.50 pocket money.
She spends $\frac{1}{3}$ of her money on a bag of sweets.

What is the cost of the bag of sweets?

Answer: £ ..... [1]

c) Adam eats $\frac{3}{5}$ of a bag of sweets.
There are 8 sweets left uneaten.

How many sweets were in the bag at the start?

Answer: ..... [2]

18. Match each fraction below to its decimal equivalent.
(The first one has been done for you.)

$\frac{1}{2}$	$\frac{8}{25}$	$\frac{3}{4}$	$\frac{9}{8}$	$1\frac{1}{5}$
0.75	0.5	1.2	1.125	0.32

[2]

19. Calculate

a) $\frac{5}{8} - \frac{1}{4}$

Answer: ..... [2]

b) $\frac{7}{8} + \frac{3}{4}$

Write your answer as a mixed number.

Answer: ..... [2]

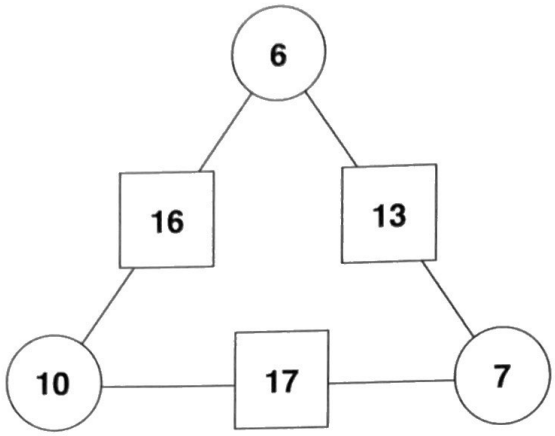
20. Write 'true' or 'false' next to each statement in the table below.

statement	true or false?
the sum of angles around a point is 360°	
opposite angles in a parallelogram are equal	
each angle in a scalene triangle is 60°	
all rectangles have 4 lines of symmetry	
a trapezium will never contain a right angle	
a hexagon has 6 sides	

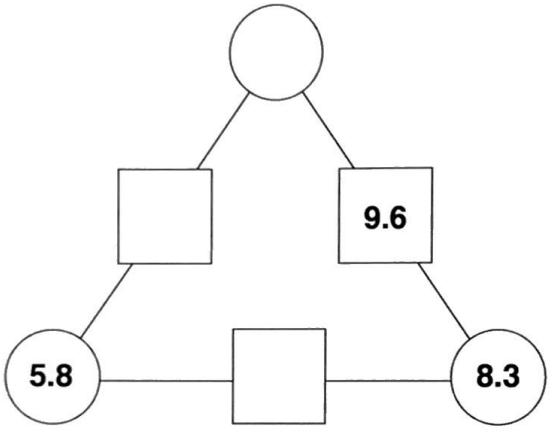
[6]

21. In each diagram in this question, the number in each square is equal to the sum of the numbers in the circles on either side.

Here is an example:

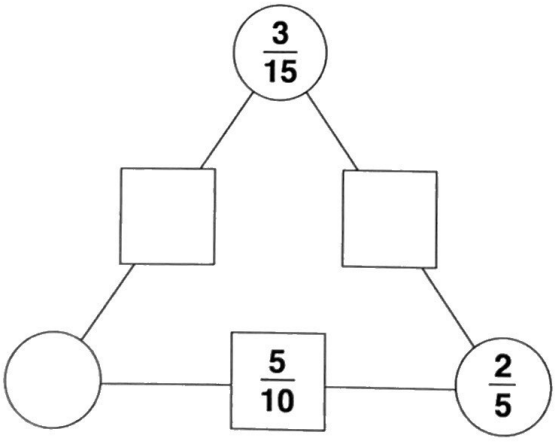


a) Fill in the missing numbers in the diagram below.



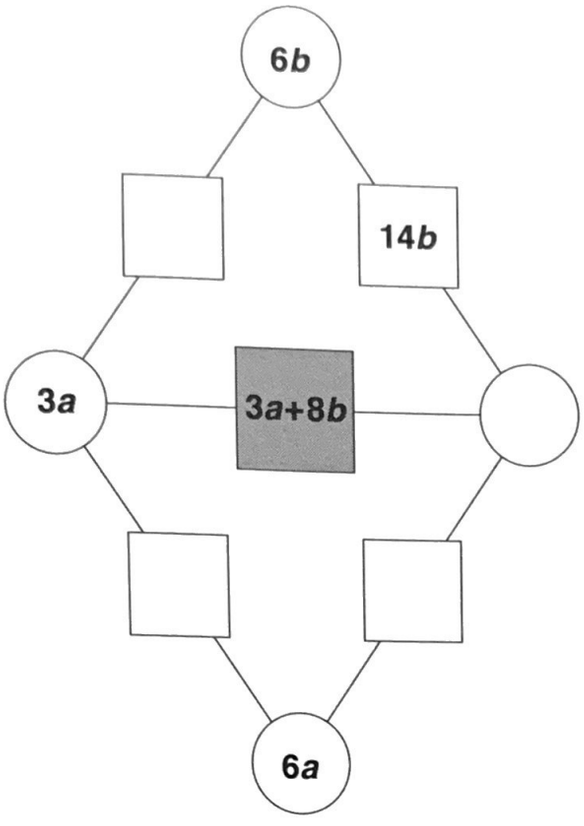
[3]

b) Fill in the missing fractions in the diagram below.



[3]

c) i) Using the same rule, fill in the missing expressions.



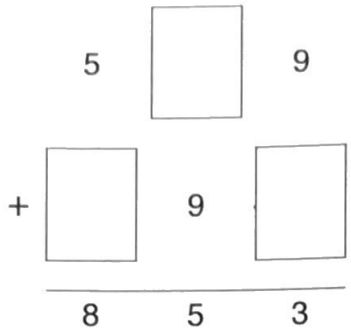
[4]

ii) If $a = 5$ and $b = 8$ what is the value of $3a + 8b$?

Answer: ..... [2]

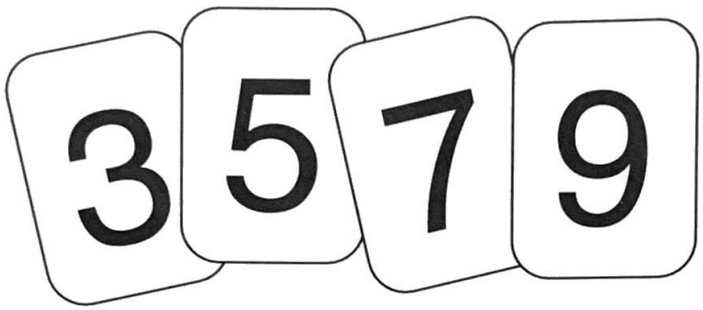
TURN OVER FOR QUESTION 22

22. a) Fill in the missing numbers in the calculation below.

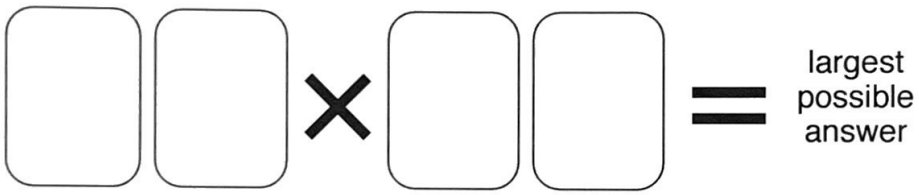


[3]

b) Here are some number cards:

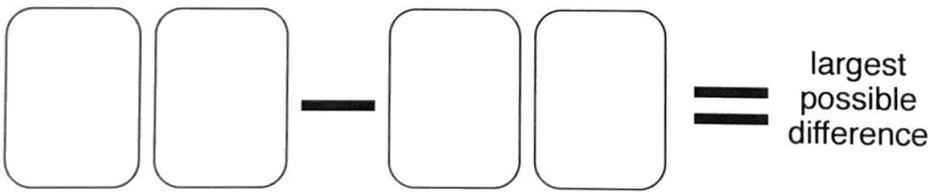


i) Arrange all the cards to give the largest possible answer.



[2]

ii) Arrange all the cards to give the largest possible difference.



[2]

(Total marks: 100)