11+

LATYMER

SAMPLE

Entrance Examination

MATHEMATICS

Time allowed: 60 minutes

Instructions

- Calculators are NOT allowed. You may use a ruler.
- Attempt all questions.
- If you cannot do a question, go on to the next one and try again later on.
- Do not ask the teacher to explain a question to you.
- If you finish before the end, check your answers and then wait quietly in your place.
- If you do not finish, or if you cannot understand all the questions, do not worry.

Section A

- You should spend about 20 minutes on this section.
- Each question is provided with FIVE possible answers, only ONE answer is correct.
- Write the correct answer in the box on the right, if you make a mistake, rub it out and try again.

Section B

- You should spend about 40 minutes on this section
- Write your answers and working in the spaces provided. DO NOT use extra paper.

Section A

1. What is 148 + 476?

A: 514 B: 524 C: 614 D: 624 E: 634

2.

$$\begin{array}{r} 2\ *\ 8 \\ +\ 2\ 9\ 9 \\ \hline 5\ 7\ 7 \end{array}$$

Which of the following gives the correct number for *?

A: 3 B: 4 C: 5 D: 6 E: 7

3. What is 45×160?

A: 720 B: 4800 C: 7200 D: 640 E: 1440

4. Work out three-sevenths of 91

A: 42 B: 39 C: 36 D: 26 E: 13

5. What is $423 \div 9$?

A: 43 B: 47 C: 35 D: 57 E: 37

6. What number is halfway between $4\frac{1}{2}$ and $7\frac{1}{2}$?

A: $5\frac{1}{4}$ B: $5\frac{1}{2}$ C: $5\frac{3}{4}$ D: 6 E: $6\frac{1}{4}$

7. Work out $1+2\times3+4\times5+6$

A: 21 B: 35 C: 71 D: 33 E: 231

8. Three-quarters of a number is 36 less than the number. What's the number?

A: 144 B: 48 C: 124 D: 154 E: 52

9. Which of the following is the largest?

A: 13×14 B: 12×15 C: 11×16 D: 9×18 E: they're all equal

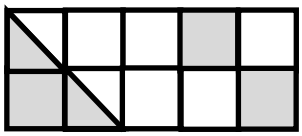
10. Find the sum of all the prime numbers between 30 and 50

A: 152 B: 168 C: 197 D: 199 E: 201

11. What time is 1 hour 32 minutes before 7:19 pm?

A: 4:42 pm B: 4:52 pm C: 5:47 pm D: 3:42 pm E: 2:56 am

12. What fraction of this rectangle is shaded?



A: $\frac{1}{10}$ B: $\frac{3}{10}$ C: $\frac{1}{3}$ D: $\frac{1}{2}$ E: $\frac{2}{5}$

13. I buy 3 chocolate bars for 65 pence each and 5 bags of crisps for 55p each. How much change do I get from a £5 note?

A: 30p B: 35p C: 40p D: 45p E: 50p

14. Two whole numbers multiply together to make 180. What is the smallest possible **difference** between the two numbers?

A: 3 B: 8 C: 11 D: 21 E: 57

15. Work out 80% of £535.

A: £107 B: £372 C: £400 D: £418 E: £428

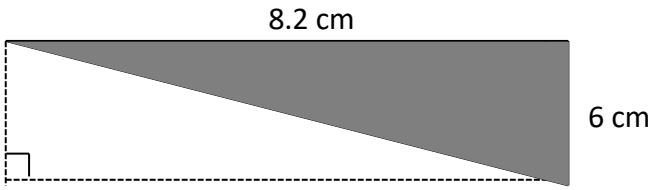
16. Toy cars cost 84p each or £2.20 for a box of three. What's the largest number of cars I can buy with £15?

A: 17 B: 18 C: 19 D: 20 E: 21

17. I have lots of 5p, 8p and 11p stamps. What's the biggest amount I **cannot** make exactly with my stamps?

A: 7p B: 49p C: 19p D: 38p E: 17p

18. What is the area of the shaded triangle below? (Diagram not to scale)



A: 13.2 cm^2 B: 24 cm^2 C: 24.2 cm^2 D: 24.6 cm^2 E: 49.2 m^2

19. How many different ways are there of paying exactly 20p using only 1p and 2p coins?

A: 2 B: 11 C: 10 D: 5 E: 20

20. A woman's age is 70 years, 70 months, 70 weeks and 70 days. How old will she be on her next birthday?

A: 71 B: 76 C: 78 D: 80 E: 81

Section B

21. Fill in the missing numbers in the following sequences:

a) 10, 13, 16, ____, ____, 25, 28

b) 29, 22, 15, 8, ____, ____, -13, -20

c) 1, -2, 4, -8, ____, ____, 64, -128

22. a) Work out 53×173

Answer:……..……..

b) Subtract 235 from 412.

Answer:……..……..

c) What is the remainder when 531 is divided by 17?

Answer:……..……..

23. Here are two ways of making a total of 12 from three **different** whole numbers:

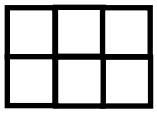
2 + 3 + 7 =12 3 + 4 + 5 = 12

a) Write down all the ways of making a total of 12 using three different whole numbers (don't count 2 + 3 + 7 as different from 3 + 7 + 2).

b) How many ways are there of making a total of 15 using three **different** whole numbers?

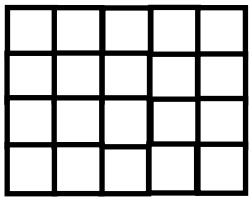
Answer:……..

24.



The 2 by 3 rectangle above contains eight squares: six 1 by 1 squares and two 2x2 squares.

a) How many squares are in this 4 by 5 rectangle?



Answer:……..……..

b) Find a rectangle which contains exactly 20 squares.

Answer:…….…….

25. a) Robin thinks of a number. When he triples the number and then subtracts 13, he gets 11. What's his number?

Answer:……..……..

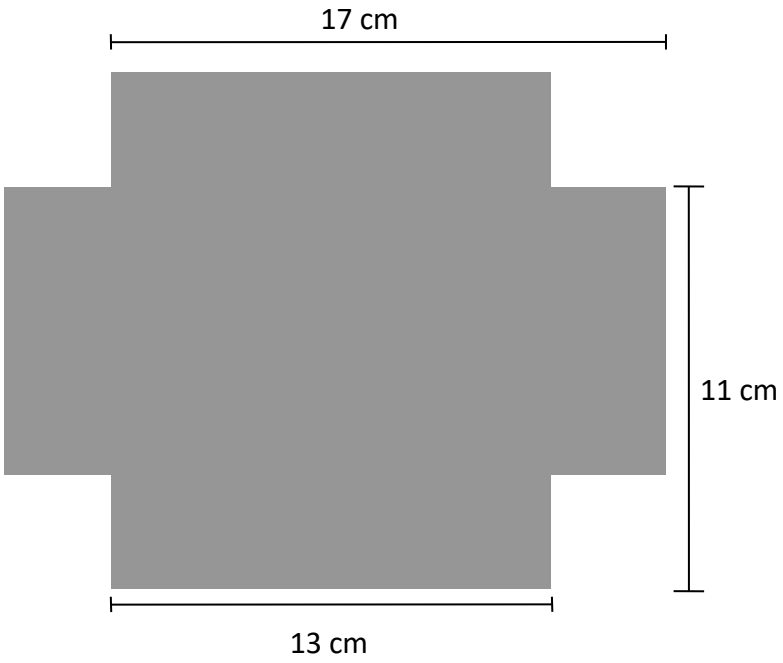
b) Ros thinks of a number. When she subtracts the number from 91 and then adds 19 to the answer, she gets 12. What's her number?

Answer:……..……..

c) Neetha thinks of a number. When she multiplies the number by 5 and then subtracts the answer from 84 she gets her original number. What's her number?

Answer:……..……..

26. A shape is made by cutting equal squares from the corners of a rectangular piece of card. Find the area of the remaining card.



(Diagram not to scale)

Answer:……..……..

27. Here's a rule to combine two numbers: multiply each number by itself, then add these two numbers together; finally add together the digits of this answer. For example 5 and 8 combine to give 17 because $(5\times5)+(8\times8)=89$ and then $8+9=17$.

a) What do you get when you combine 3 and 7 using this rule?

Answer:……..……..

b) I'm thinking of two different numbers. When I combine them using this rule, I get the answer 9. What could my two numbers be?

Answer:……..……..

Mia and Julian play a game. In the game, Mia chooses a whole number, and then Julian has to choose another whole number so that when he combines it with Mia's number using the rule above, the answer is 7. If he can't find a number, Mia wins.

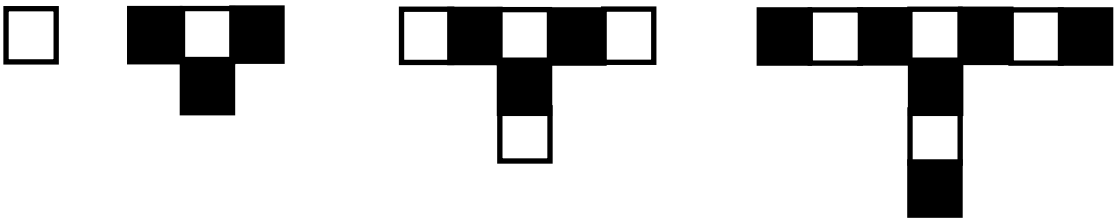
c) If Mia says the number 3, what number should Julian choose?

Answer:……..……..

d) If Mia says the number 9, what number should Julian choose?

Answer:……..……..

28. A pattern is made using black and white squares. The first four patterns are shown below:



a) Complete the table below:

Pattern number	1	2	3	4
Number of white squares	1			
Number of black squares	0	3		

b) How many black squares will there be in the 8th pattern?

Answer:……..……..

c) How many squares will there be in total in the 19th pattern?

Answer:……..……..

c) Which pattern number has 31 white squares and 33 black squares?

Answer:……..……..

d) Sam draws a pattern like the ones above and says, "there are 96 black squares and 95 white squares in my pattern." How can you tell that he must have miscounted?

Answer:……..……..

29. My watch (which is a 12 hour watch) gains 3 minutes every 2 hours.

a) I set my watch to the correct time at noon on 1st January. If I don't reset it, when will it next show the correct time?

Answer:……..……..

Mrs Varma's watch (also a 12 hour watch) loses 5 minutes every 2 hours. She also sets her watch to the correct time at noon on 1st January.

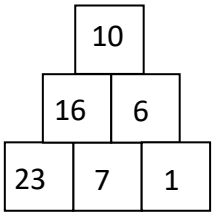
b) When will our two watches next show the same time?

Answer:……..……..

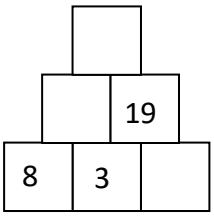
c) When will our watches next show the same, **correct** time?

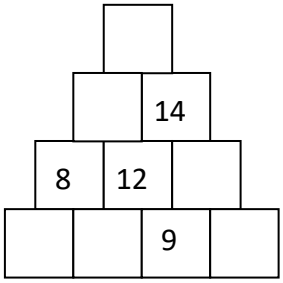
Answer:……..……..

30. The diagram below is made using the following rule: the number in each square is the difference between the numbers in the two squares below it:

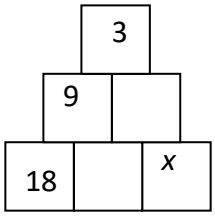


a) Copy and complete the diagrams below using the same rule and only positive numbers.





b) If the same rules are used in the diagram below, what are the possible values for the number *x*?



Answer:……..