Name:

MATHEMATICS ENTRANCE EXAM

SPECIMEN PAPER

Time allowed: 45 minutes

Calculators may not be used

- Answer as many questions as you can.
- Write your answers in the spaces provided.
- Show any working in the spaces by the questions.
- If you cannot answer a question, go on to the next one.
- Use any spare time at the end to go back to any questions which you did not complete and to check your work.

Do not open this paper until you are told to do so.

1. Here is a number sequence:

4 8 12 16 20 24 28

Use one of these words to complete the sentences.

prime **factor** **square** **multiple** **cube**

(a) Each number is a ……of 4.

(b) The numbers 4 and 16 are ……. numbers.

(c) Each of the numbers 4, 8 and 12 is a …….. of 24.

(d) The number 8 is a …… number.

---

2. Take 42 away from 231.

Answer .....

---

3. (a) 18 sweets are shared between 6 children.
How many will each child receive?

Answer ..... sweets

(b) A whole school of 1103 pupils are going to the zoo. How many coaches, each seating 34 pupils, will be needed for the trip?

Answer ..... coaches

4.

$$37 \times 102 = 37 \times 100 + 37 \times 2$$
$$= 3700 + 74$$
$$= 3774$$

Do this calculation in the same way.

$23 \times 101 =$ .....

$=$ .....

$=$ .....

---

5. John left home at 13:55 and reached the shops at 15:20
How long did his journey take?

Answer ..... minutes

---

6. A mug costs £1.35.
What is the cost of a set of six mugs?

Answer £.....

---

7. Emma's calculator displayed

189.23574

(a) Write this number correct to the nearest 100.

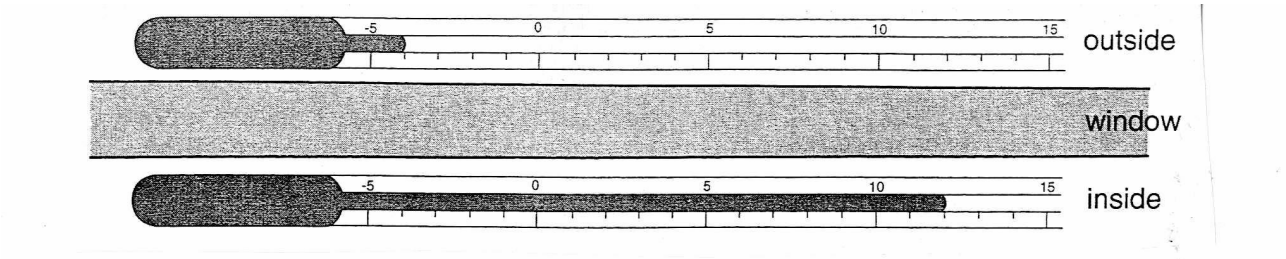
Answer .....

(b) Write this number correct to the nearest 10.

Answer .....

---

8. These two identical thermometers show the temperatures in °*C* inside and outside a window.



(a) What is the temperature inside the window?

Answer ..... °*C*

(b) How many degrees colder is it outside than in?

Answer ..... °*C*

---

9. Fill in the missing numbers.

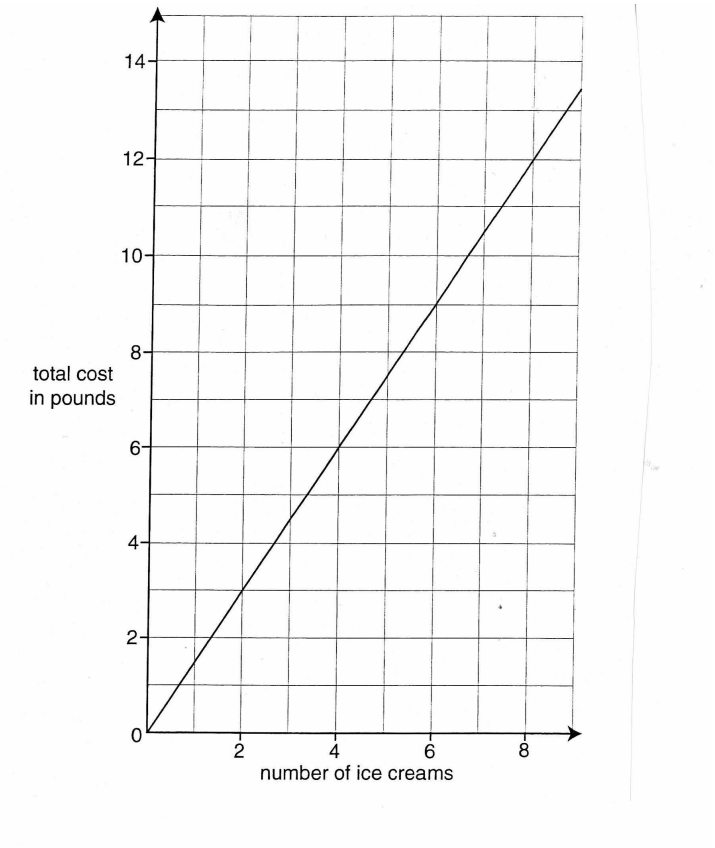
(a) $91 + \ldots\ldots\ldots + 48 = 250$

(b) $\ldots\ldots\ldots - 2455 = 4128$

(c) $\ldots\ldots\ldots + 2.56 = 5.38$

---

10. Melty ice creams cost £1.50 each. A shop uses the graph below to find the total cost when a customer buys more than one ice cream.



Use the graph to find

(a) The cost of 7 ice creams

Answer £.....

(b) How many ice creams can be bought for £9.00.

Answer .....

---

11. Find 15% of 30.

Answer .....

---

12. Ring the numbers below which are divisible by 7.

210 180 497

---

13. Which of these decimals is equivalent to $\frac{193}{100}$?

1.93 10.193 0.193 19.13

Answer .....

---

14. The numbers of ice creams sold on a bank holiday weekend were

Saturday: 45 Sunday: 63 Monday: 54

What was the mean number of ice creams sold per day?

Answer .....

---

15. Write the next number in these sequences.

(a) 20 25 30 35 40 ……

(b) 1 2 3 5 8 ……

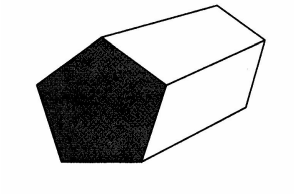
---

16. Share 55p between Fred and Phil so that Fred has 15p more than Phil.

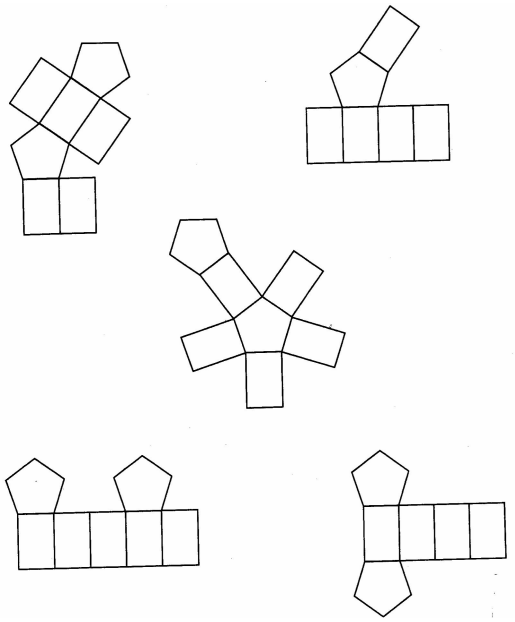
Answer .....

---

17. This is a drawing of a pentagonal prism.



Circle the shape below that is a net for the prism



---

18. I think of a number, add 6.2, then multiply by 4.
The answer is 43.2. What is the number?

Answer .....

---

19. A square has a perimeter of 32 *cm*. What is its area?

Answer ..... cm^2

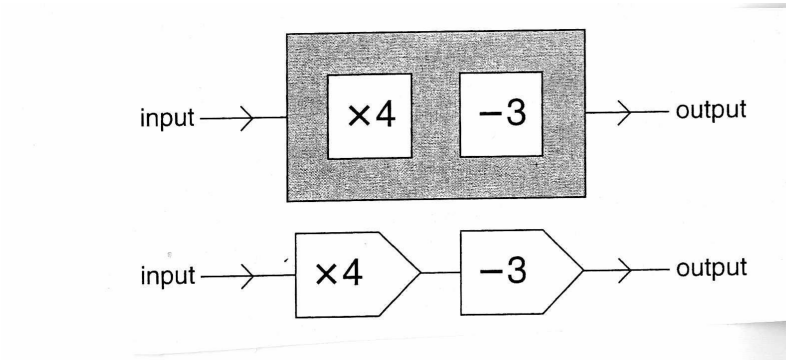
---

20. Tins of dog food cost 37p each. They are sold in packs of ten.
10 packs of ten are put in a box. 10 boxes are put in a crate.
How much do 10 crates cost?

Answer .....

---

21. Lucy has drawn a flow chart to represent a function machine.



(a) If the input is 5, what will be the output?

Answer .....

(b) What will be the input if the output is 37?

Answer .....

(c) Which input will give an output of 7?

Answer .....

(d) What will the output be if the input is zero?

Answer .....

---

22. Paul brings a packet of chocolate biscuits to school. In the morning he shares half the packet with Jane and Peter. In the afternoon he shares the other half with Sally. If there are 24 biscuits in the packet, how many do each of them have?

Answer Jane.....

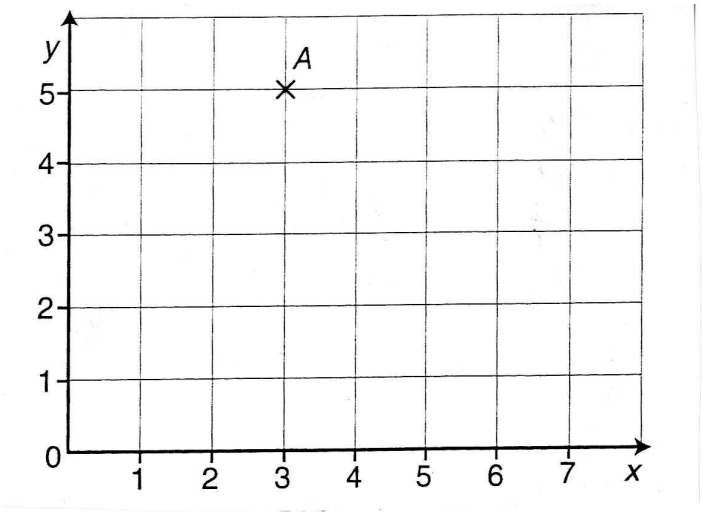
Paul.....

Sally.....

Peter.....

---

23. The point A (3,5) is plotted on the grid below.



(a) Mark the points B (1,4) and C (3,1) on the grid.

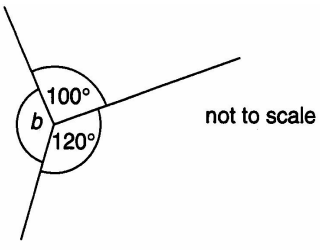
(b) Mark another point D so that $ABCD$ is a kite.

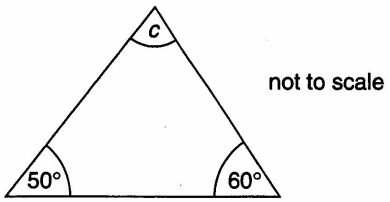
(c) Write down the coordinates of the mid point of AC.

Answer .....

---

24. Calculate the missing angles.





Answer b = ... ° c = ... °

---

25. The table below shows the absences for each class in a school during one week.

Class	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Total**
1	2	1	0	1	0	4
2	3	2	1	2	1	9
3	0	2	3	2	4	.....
4	2	3	3	1	1	10
5	1	.....	0	2	20	.....
Total	8	11	7	.....	26	.....

(a) Fill in the blanks.

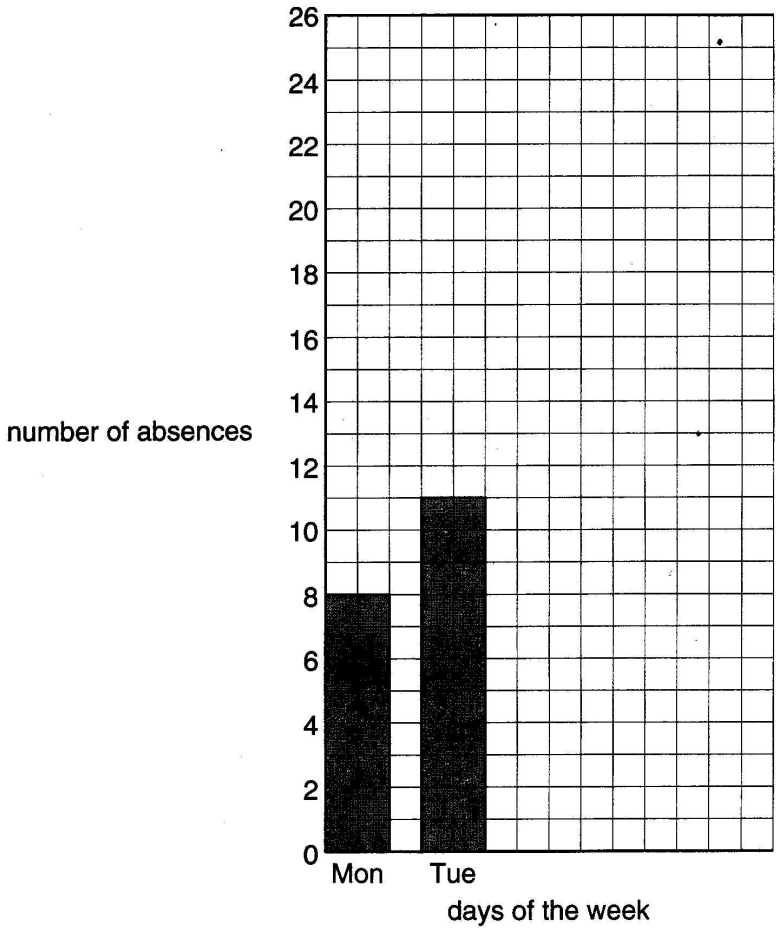
(b) Which class had perfect attendance on two days of the week?

Answer .....

(c) One class visited a gallery that week. On which day did they go?

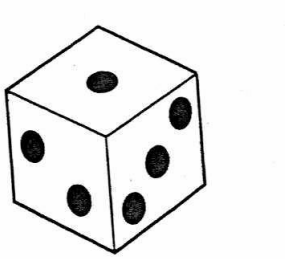
Answer .....

(d) Complete the bar chart to show the total number of absences per day.



---

26. Sandra rolled an ordinary die 42 times.



She scored 6 three times.

How many times might she have expected to score 6?

Answer .....

---

27. Fred and Sita play a game of counters. At the end of the game Fred has 20 counters, $\frac{4}{5}$ of the number he started with, and Sita has 15 counters.

(a) How many counters did Fred start with?

Answer .....

(b) What is the ratio of Fred's counters to Sita's counters at the beginning of the game?

Answer .....

---

28. The top speed of a tortoise is 0.24 km per hour.
How far can it travel in 7.5 minutes?
Give your answer in metres.

Answer .....*m*

---

29. Each $*$ represents a mathematical operation. Rewrite each calculation with the correct symbols in place of the $*$s.

$411 * 12 * 6 = 205.5$ $411.....12.....6 = 205.5$

$411 * 12 * 6 = 822$ $411.....12.....6 = 822$

30.

Recipe for Fruit Cocktail
1 part lime juice
2 parts sugar syrup
5 parts fruit puree
4 parts soda water

I have a bottle each of lime juice, sugar syrup and soda water, but only 45cl of fruit puree. How much fruit cocktail can I make?

Answer .....

END OF QUESTIONS

Use any spare time to check your work