2012 / lst

OUNDLE SCHOOL

Name:

Mathematics Examination for Entrance to the First Form **Time : 1 hour**

This paper consists of two sections, Sections A and B. For entry into Oundle School, candidates are only expected to complete Section A, although you may tackle some of Section B if you want to and have time.

*Write **ALL** of your working on this paper. No other paper may be used. The answers alone are of no use. Show enough working on each question to show how you are getting your answer.*

NO CALCULATORS ALLOWED

SECTION A

1. Work out 28 + 187 Answer ……	2. Work out 1034 – 187 Answer …….
3. Multiply 67 × 9 Answer …….	4. Work out 441 ÷ 7 Answer …….

5. Write as a number: four hundred million thirty two thousand two hundred and one.

Answer: ……

6. What would 1m 35 cm of gold wire cost at a price of £9.60 per metre?

Answer: ……

7. Calculate the following:

(a) $1 + 2 \times 3 - 4 \times 5 =$

Answer: ……

(b) $1 \times 2 + 3 \times 4 + 5 =$

Answer: ……

(c) $1 + 2 \times 3 \times 4 =$

Answer: ……

(d) $1 + 2 \div 3 + 4 \times 5 =$

Answer: ……

(e) $2 + 3 \times 4 + 5 =$

Answer: ……

8. Write the correct mathematical operations in the boxes to make each of the following statements true.

(a) 3 ☐ 4 ☐ 5 = 23

(b) 3 ☐ 4 ☐ 5 = 2

(c) 3 ☐ 4 ☐ 5 = 7

(d) 3 ☐ 4 ☐ 5 = –17

9. (a) I think of a number, then add five. The result is 11.
What was the original number?

Answer: .....

(b) I think of a number, double it, then add five. The result is 11.
What was the original number?

Answer: .....

(c) I think of a number, double it, then add five. The result is −11.
What was the original number?

Answer: .....

10. Jack runs at 6.5 metres per second along a 400 metre track.
How far is he from the finish after 1 minute?

Answer: .....

11. Write the following fractions in order, **starting with the smallest**.

$$-\frac{1}{7},\ \frac{1}{6},\ -\frac{1}{5},\ \frac{1}{4},\ -\frac{1}{3}$$

Answer: ……

12. You are told that $18 \times 27 = 486$.
Use this information to answer the following:

(a) 1.8×2.7

Answer: ……

(b) $48.6 \div 2.7$

Answer: ……

(c) 0.018×2700

Answer: ……

(d) $48600 \div 0.0027$

Answer: ……

13. You have the numbers -3, -1, $\frac{1}{2}$, 2 and 10 available.

(a) What is the **highest** number that can be obtained by **adding** two of the above numbers?

Answer: .....

(b) What is the **lowest** number that can be obtained by **adding** two of the above numbers?

Answer: .....

(c) What is the **highest** number that can be obtained by **subtracting** one number from another from the above numbers?

Answer: .....

(d) What is the **lowest** number that can be obtained by **subtracting** one number from another from the above numbers?

Answer: .....

14. A millionth of a second is called a *micro*second.
Roughly how many minutes long is a *micro*century?

Answer: .....

15. A house is bought for £100,000 pounds.
The housing market is buoyant and, after a year the house has increased in value by 10%.

(a) What is the total value of the house after one year?

Answer: .....

The following year, the housing market slumps. The house loses 10% of its value over the second year.

(b) What is the total value of the house after the second year?

Answer: .....

16. (a) It takes 4 hours for 1 person to build a fence.
How long would it take to build the fence if there were 2 people working on it?
(Assume all people work at the same pace)

Answer: .....

(b) It takes 2 hours for 3 people to paint a wall.
How many people would be required to paint the wall in 1 hour?

Answer: .....

(c) It takes 4 hours for 3 people to dig a hole.
How many people would be required to dig the hole in 3 hours?

Answer: .....

17. (a) How many 3–digit numbers can be formed by writing the digits 1, 3, 5 in different orders?

Answer: .....

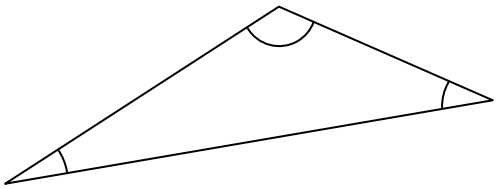
(b) How many 4–digit numbers less than 6 000 can be formed by writing the digits 1, 3, 5 and 6 in different orders?

Answer: .....

(c) How many 5–digit numbers less than 60 000 can be formed by writing the digits 0, 3, 5, 6 and 7 in different orders?

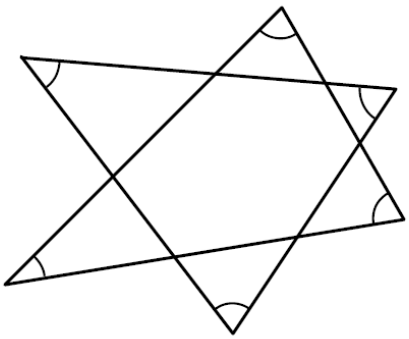
Answer: .....

18. (a) What is the sum of the angles marked in the diagram?



Answer: .....

(b) What is the sum of the angles marked in the diagram?



Answer: .....

19. The mean (or average) of a set of numbers is obtained by adding them all up, and dividing by how many there are. For example, the mean of 3, 4, 6, and 7 is $(3 + 4 + 6 + 7) \div 4 = 20 \div 4 = 5$.

(a) Calculate the mean of the numbers 3, 6, 17 and 34.

Answer: .....

(b) The mean of four numbers is 28. Three of the numbers are 3, 7 and 12.
What is the fourth number?

Answer: .....

20. Two missiles speed directly toward each other, one at 9,000 miles per hour and the other at 21,000 miles per hour. They start 1,317 miles apart.
How far apart are they one minute before they collide?

Answer: .....

SECTION B

21. (a) Calculate 5212×29

Answer: .....

(b) Calculate $2808 \div 36$

Answer: .....

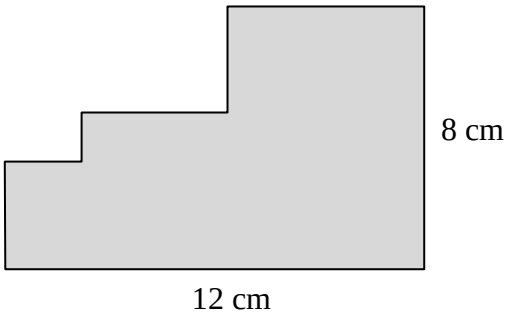
(c) Calculate 12345679×9

Answer: .....

(d) Calculate $201 \div 70$, giving your answer correct to 5 decimal places.

Answer: .....

22. The three–step staircase shown has a base length of 12 cm and a height of 8 cm.
Find the perimeter of the shape.



Answer: ……

23. When a barrel is 30% empty it contains 30 gallons more than when it is 30% full.
How many gallons does the barrel hold when full?

Answer: ……

24. (a) How many numbers less than 100 are divisible by 3?

Answer: ……

(b) How many number less than 100 are divisible by 4?

Answer: ……

(c) How many numbers less than 100 are divisible by 12?

Answer: ……

(d) How many numbers less than 100 are **not** divisible by 3 or 4?

Answer: ……

25. In a school with 380 pupils the following facts are true:
- 70% of pupils can swim
- 40% of the boys cannot swim
- 200 girls can swim

How many girls are there in the school?

Answer: ……

26. Write twelve thousand twelve hundred and twelve as a number.

Answer: ……