SEVENOAKS SCHOOL

YEAR 7 (11+) ENTRANCE EXAMINATION
January 2023
for entry in September 2023

MATHEMATICS

Name: _____

School: _____

Time allowed: 1 hour

Equipment needed: Pen, pencil, eraser, ruler.

Information for candidates:
1. Calculators are NOT allowed.
2. Write your name and school on this sheet.
3. Write your answers on the question paper in the space provided.
4. There are 19 questions in this paper, try to answer all of them, but don't worry if you don't complete the paper. If you get stuck, just go on to the next question and if you have time at the end come back to the one(s) you left.
5. There are 60 marks in total available for this paper. Marks for each question are shown in square brackets [ ] after the question.
6. Show all your working. You may be awarded marks for correct working even if your final answer is incorrect, and a correct answer unsupported by correct working may not receive full marks.

1. The Sevenoaks café charges £1.20 for a coffee and £0.80 for a tea.
How much would it cost to buy 4 coffees and 3 teas in total?

_____ [3]

2. A school has 937 students. In the next academic year, 315 new students join the school while 138 leave. How many students are now at the school?

_____ [1]

3. a) Round 813, 451 to the nearest 1000

_____ [1]

b) Round 4.059 to 1 decimal place

_____ [1]

c) Round 0.0648 to the nearest hundredth

_____ [1]

d) A calculator automatically rounds its answers to two decimal places. After a calculation, it displays the result 325.28.

What is the largest value that the calculation could have produced on this calculator?

_____ [1]

4. a) Peggy claims that 1232 divides perfectly by 9. Is she right? You must show your working.

_____ [2]

b) Jenny claims instead that 12345678987654321 is divisible by 9. Explain how she knows this without needing to perform the division.

_____

_____

_____

_____

_____

[2]

5. Use the fact that $28 \times 16 = 448$ to work out the following:

a) $448 \div 28 =$

_____ [1]

b) $1.6 \times 2.8 =$

_____ [1]

c) $44.8 \div 16 =$

_____ [1]

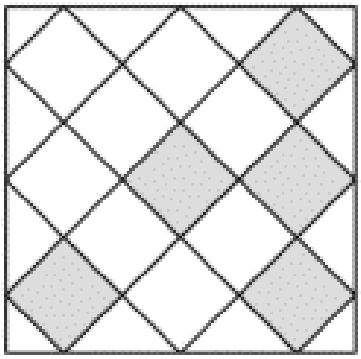
d) $0.28 \times 1600 =$

_____ [1]

6. Aran is taking a train from Sevenoaks to Canterbury. This involves a 47-minute train to Ashford, followed by a 22-minute wait, followed by a 14-minute train to Canterbury. If his train leaves Sevenoaks at 10:43, what time will he arrive in Canterbury?

_____ [2]

7. Shade in one square so the pattern below has exactly one line of symmetry:

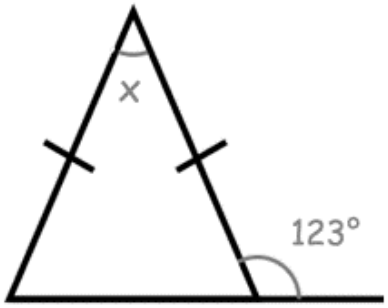


[1]

8. Lorenzo scores 26 out of 40 in an exam. The pass mark set is 70%. Did Lorenzo pass? You must show all your working.

_____ [2]

9. a) Find the size of the angle marked x:



_____° [3]

b) A triangle is formed with two different side lengths, 8cm and 3cm.
Yiannis says there are two possible triangles that can be formed. Is he correct?
You need to justify your answer via sketches or a sentence.

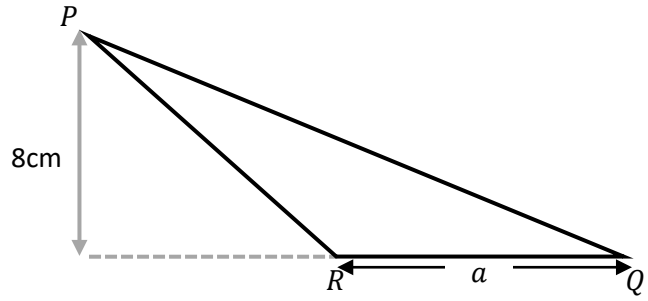
[2]

10. Evaluate, leaving your answer as a <u>mixed fraction</u> in its <u>simplest form</u>:

$3\frac{3}{4} + 5\frac{1}{3} - 0.5^2$

_____ [3]

11. The area of triangle PQR below is 56 cm^2. Find a:



_____ cm [2]

12. Place the following quantities in ascending order:

$$5.5\%, \quad \frac{1}{20}, \quad 0.056, \quad \frac{1}{10}, \quad 0.55$$

_____ [3]

13. Evaluate and simplify where appropriate:

a) $3^2 - 4 \times 5$

_____ [1]

b) $\frac{(5+7)-\sqrt{16}\times 2}{8}$

_____ [3]

14. Jenny is doing an exercise on fractions. She completes the first two questions below and notices that her answer for B is larger than her answer for A. What is the difference between her two answers?

A. $\frac{3}{7} \times \frac{28}{9}$

B. $2\frac{1}{4} \div \frac{3}{2}$

_____ [4]

15. The patterns below are made from sticks:



Pattern 1 Pattern 2 Pattern 3

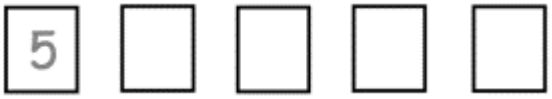
Pattern 4

a) In the box, draw Pattern 4. [2]

b) How many sticks will appear in the twelfth pattern?

_____ [2]

16. Shown below are 5 cards which are arranged in ascending order:

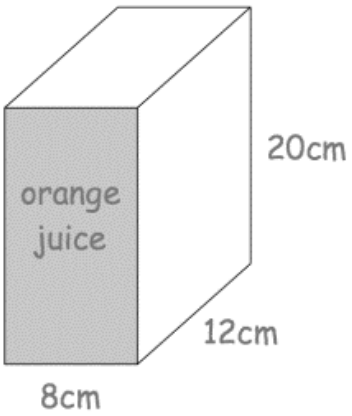


The range of the cards is 6.
The median of the cards is 7.
The mean of the cards is 8.
Find the four missing numbers.

_____ [4]

17. A carton of orange juice (shown below) is cuboid shaped. The depth of orange juice is normally 10 cm.

The carton is turned so that it stands on the shaded face. Work out the depth of the orange juice now.



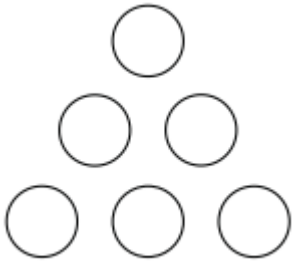
_____ [3]

18. Sevenoaks School has an election for its school council. There are four candidates: Tom, Sheila, Alex and Elise. 540 students voted in the election.
5% of the votes were for Tom.

Sheila received $\frac{2}{9}$ of the votes.
The ratio of the number of votes for Alex and for Elise was 2:1.
How many votes did the winner receive?

_____ [4]

19. Zelda wants to put the numbers 2, 3, 4, 5, 6 and 10 into the circles so that the products of the three numbers along each edge are the same, and as large as possible. What is this product?



_____ [3]