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THE PERSE

UPPER SCHOOL

CAMBRIDGE

Year 7 Entrance Exams

Maths

Specimen Paper 3

Instructions to candidates

Time allowed: 45 minutes

Instructions to candidates:

1. Show all working - you may receive marks for correct working even if your final answer is wrong. **Leave all fractions in their lowest form.**

2. Answer as many questions as you can, in any order.

3. Do not spend too long on any one question - if you get stuck, move on to the next.

4. Answers and working should be written on the exam paper in the spaces provided.

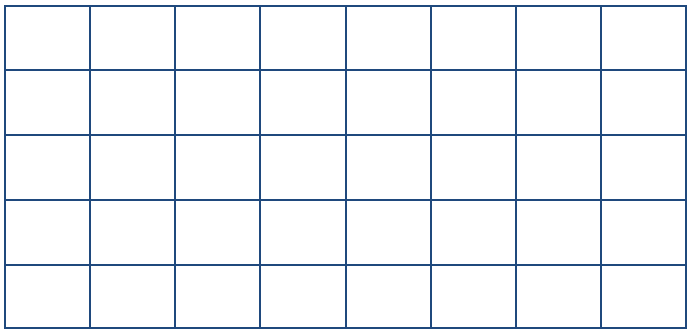
5. Calculating aids are **NOT** permitted.

1. Write in the missing numbers:

(a) 23 x ☐ = 690

(b) ☐ - 87 = 265

2. Here is a grid made up of rectangles.



Shade 20% of this grid.

3. Hamster food costs 70p for 40 grams.

What is the cost of 100g of hamster food.

Answer: _____p

4. In which of the following are the terms NOT getting bigger?

A. $\frac{1}{5}, 0.25, \frac{3}{10}, 0.5$ **B.** $\frac{3}{5}, 0.7, \frac{4}{5}, 1.5$ **C.** $\frac{2}{5}, 0.5, \frac{7}{10}, 0.9$

D. $\frac{3}{5}, 0.5, \frac{7}{10}, 0.9$ **E.** $\frac{2}{5}, 1.5, \frac{10}{5}, 2.3$

Answer: _____

5. I am five years older than my brother. Our ages add up to 23. How old am I?

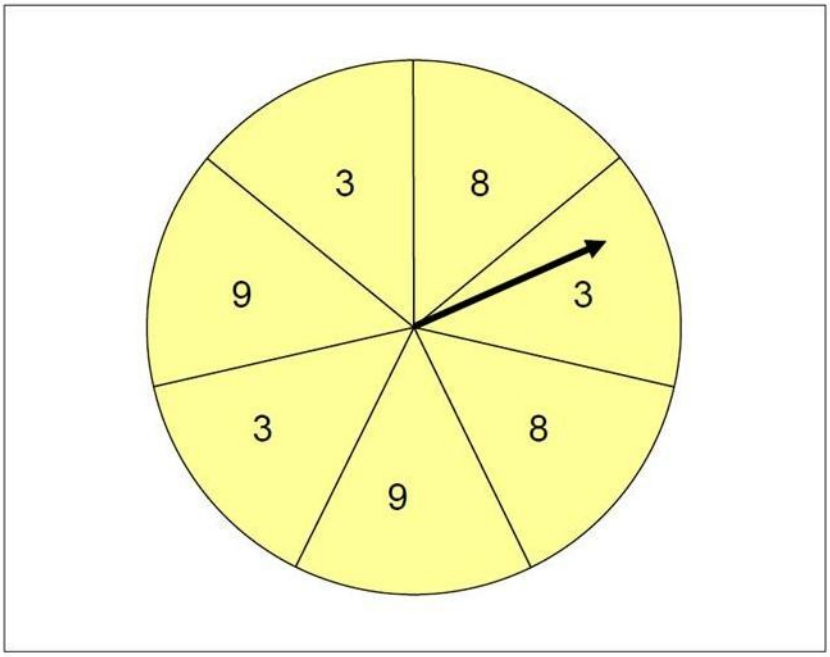
Answer: _____

6. The spinner below is divided into seven equal sections.

(i) Which two numbers are equally likely to come up?

Answer: _____ , _____

(ii) Bob says “3 has a less than even change of coming up”.



Is he right? Answer: _____

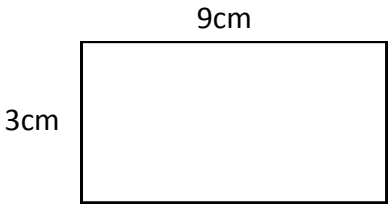
Explain your answer: _____

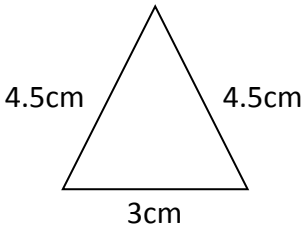
_____

7. Bob's bucket weighs 21kg when full of water. After he pours half the water from the bucket, it weighs 12kg. What is the weight of the empty bucket?

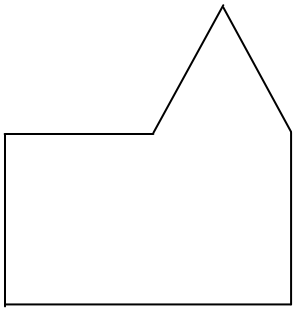
Answer: _____kg

8. Bob has one rectangular tile and one triangular tile like those shown below. **[Diagrams not drawn to scale]**





He uses them to make this shape.



What is the perimeter of Bob's shape?

Answer: _____cm

9. Look at the following list of numbers

-5 -4 -3 -2 -1 0 1 2 3 4 5

Write down two of these numbers with a difference of 8

Answer: _____ , _____

Write down two of these numbers which have a sum of –3

Answer: _____ , _____

10. What is half of 299?

Answer: _____

11. Calculate each of the following

(a) 8547 + 929

Answer: _____

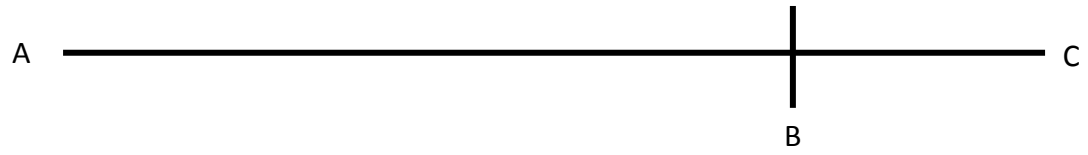
(b) 3712 - 1821

Answer: _____

(c) 3.6 x 9

Answer: _____

12. An ant is travelling along the straight line AC as shown below. The distance from A to B is four times as far as the distance from B to C. The distance from A to C is 80cm. [diagram not drawn to scale]



(a) Find the distance from A to B in centimetres

Answer: _____cm

(b) Write down the distance from A to B in millimetres

Answer: _____mm

13. Circle the number nearest to 0.1

0.2 0.101 0.11 0.99 0.0998 1.0

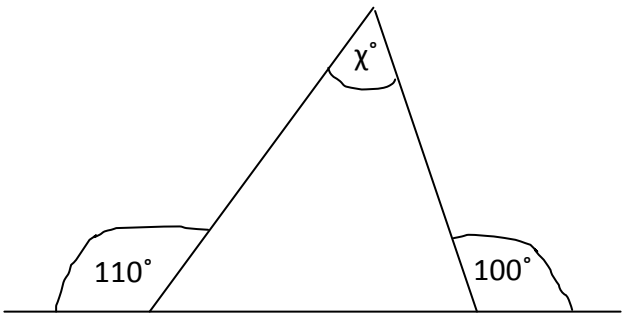
14. Mr Smith, a maths teacher, takes 8 minutes to mark each pupil's homework. He has a class of 31. How many minutes will he save if 7 of the class are absent?

Answer: _____mins

15. Yesterday, the reading on Mr Smith's electricity meter was 098157. He was shocked to realise that all six of these digits are different. How many more units of electricity will he use before the next time all the digits are different?

Answer: _____

16. What is the size of the angle marked χ in the diagram below? [diagram not drawn to scale]



Answer: χ = _____

17. Bob is making a sequence of numbers. The first number is three. The last number is 31. Bob gets his sequence by adding the same number each time.

3 , _____ , _____ , _____ , 31

Write in the missing numbers of the sequence.

18. On Christmas day the temperature in Lisbon was –5˚C. On New Year's day the temperature was 3 degrees lower. What was the temperature on New Year's day?

Answer: _____˚C

19. Bob is thinking of a number. Alan asks him some questions.

Is it more than 40? Yes

Is it a multiple of 3? Yes

Is it a multiple of 5? Yes

Is it more than 60? No

What numbers could Bob be thinking of?

Answer: _____

20. Circle all of the following which are **correct**

A 13 + 7 x 2 = 40

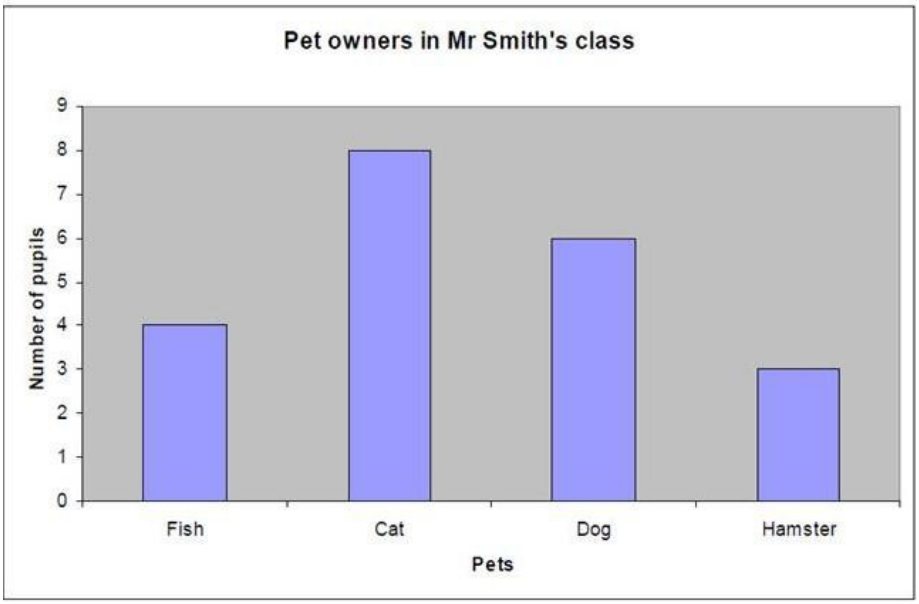
B -3 + 12 ÷ 3 = 1

C 4 x 5 + 3 x 2 = 26

D 30 ÷ 3 + 2 = 6

E 10 + 5 x 8 - 3 = 35

21. The bar chart shows the number of children who own a pet in Mr Smith's class.



(a) How many own a hamster?

Answer: _____

(b) If there are 31 pupils in Mr Smith's class, how many do not own any of the above animals?

Answer: _____

(c) What fraction of the children with pets, own a dog?

Answer: _____

22. Calculate each of the following:

(a) $6\frac{1}{3} + 9\frac{3}{4}$

Answer: _____

(b) $1\frac{3}{5} \times 5$

Answer: _____

23. Calculate 8.72 x 0.1

Answer: _____

24. When each diagram below is complete the number in the middle of each group of 3 adjoining cells is the average of its two neighbours. Fill in the missing numbers.

5		9		

25. Mr Smith is planning to catch the 10:47am plane flight from Heathrow to Edinburgh and has been told to check in at the airport one and a half hours before the flight. It will take him one hour and twenty minutes to get from his home in Cambridge to Heathrow. The flight takes 55mins from Heathrow to Edinburgh.

(a) At what time is his flight due to arrive in Edinburgh?

Answer: _____

(b) What is the latest time he should leave Cambridge to catch his flight?

Answer: _____

26. 28 x 97 = 2716

Use this result to write down the answers to each of the following:

(a) 28 x 970

Answer: (a) _____

(b) 2.8 x 0.97

Answer: (b) _____

27. In the diagram below, routes may only be made between dots by travelling along lines.

You may only travel in directions or or

So there are three routes from A to B.

(a) How many routes are there from B to C?

Answer (a): _____

(b) How many routes are there from A to C via B?

Answer (b): _____

Now check through your work carefully!