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THE PERSE

UPPER SCHOOL

CAMBRIDGE

Year 7 Entrance Exams

Maths

Specimen Paper 5

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. Find 2000 - 12 + 20 - 12

Answer: _____

2. Calculate $\frac{7}{12}$ of 864

Answer: _____

3. The table below lists the charges on a new toll road

	Daytime	Night
Lorry	£6	£4.50
Car	£3	£2
Motorbike	£2.50	£1
Van	£4	£3

(a) How much would a lorry driver and a car driver save altogether by travelling at night?

Answer: (a) _____

(b) During one night, the toll road is used by 100 cars, 200 lorries and 20 vans. How much money is collected altogether?

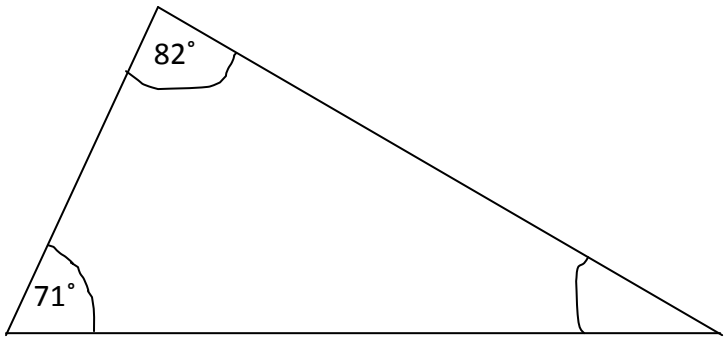
Answer: (b) _____

4. t x 0.805 = 8050

What is the value of t?

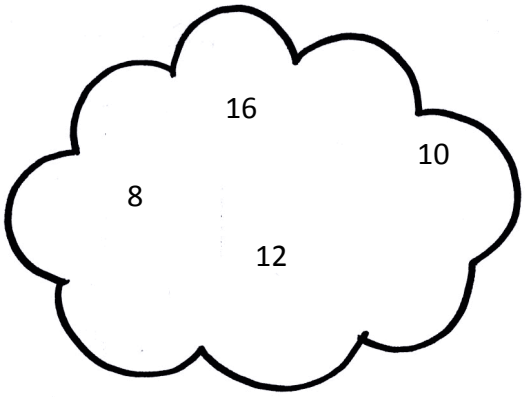
Answer: t = _____

5. Calculate the missing angle in the triangle shown below:



Answer: angle = _____

6. Frank chooses **two different** numbers from the bubble shown below, and divides one number by the other.



(a) What is the largest number he can get?

Answer: (a) _____

(b) What is the smallest result?

Answer: (b) _____

(c) What division gives the result closest to 1?

Answer: (c) _____ ÷ _____

7. Calculate

(a) $5\frac{2}{3}+2\frac{3}{5}$ **[Write your answer as a mixed number]**

Answer: (a) _____

(b) $6\times 2\frac{2}{3}$

Answer: (b) _____

8. Frank is making a sequence of numbers. The first number is 1 and the third is 9. Frank gets his sequence by multiplying the previous value by the same number each time. Write in the three missing numbers in the sequence shown.

1. _____, 9, _____, _____

9. Solve each of the following equations:

(a) 8 - χ = 2

Answer: (a) _____

(b) $x+\frac{1}{3}=1\frac{1}{4}$

Answer: (b) _____

10. On the ski slopes the depth of the snow is 160cm and each day 3cm melts. After how many days will the depth of snow have fallen to 124cm.

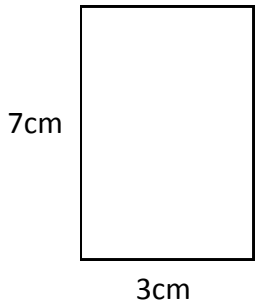
Answer: _____ days

11. Frank catches the 7.52 train from Cambridge to Northampton and he arrives in Northampton at 9.21. How long was is journey? Give your answer in hours and minutes.

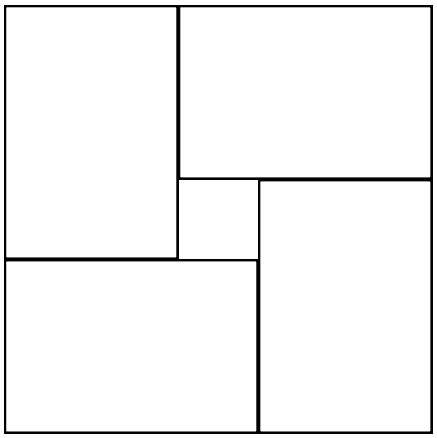
Answer: _____hours _____mins

12. Here is a rectangular tile.

A pattern is made using 4 of these tiles.



Not to scale



(a) What is the perimeter of the outer edge of the design?

Answer: (a) _____cm

(b) What is the perimeter of the square left empty in the middle?

Answer: (b) _____cm

13. (a) In one hour how many degrees does the **hour** hand of a clock move?

Answer: (a) _____

(b) How many degrees does the **hour** hand move between 1.10am and 4.30am?

Answer: (b) _____

14. What is the average of $\frac{1}{2}$ and $\frac{1}{3}$?

Answer: _____

15. Complete the following table. The first one has been done for you. (**leave all fractions in their lowest form)**

Fraction	Decimal	Percentage
$\frac{7}{10}$	0.7	70
$\frac{2}{5}$		
	0.65	
$\frac{17}{25}$		

16. Frank does the following calculations. Mark his work by putting a tick of a cross in the boxes, to indicate which Frank has correct and which he has wrong.

22 - 7 x = 45 ☐

10 x 2 + 7 x 7 = 69 ☐

12 +3 x 7 - 3 = 30 ☐

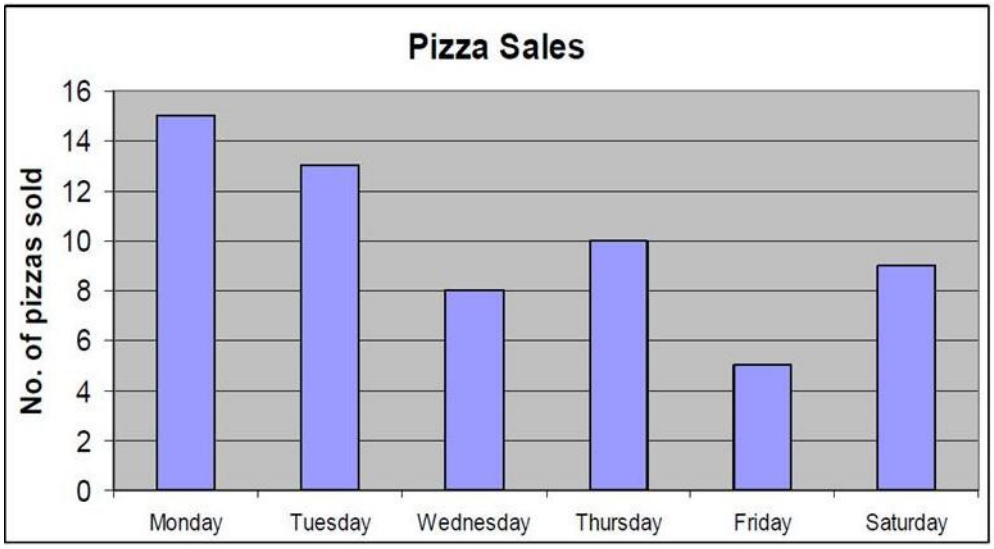
30 ÷ 3 + 2 = 6 ☐

24 ÷ 4 - 3 x 2 = 0 ☐

17. Granddad spends one quarter of his weekly pension on a Friday night out, and one third of what remains on a Saturday night. What fraction of his weekend pension is left for him to spend during the rest of the week?

Answer: _____

18. The bar chart shows the sales of pizza at a restaurant for the days shown.



Use the information in the bar chart to answer the following questions:

(a) How many more pizzas were sold on Tuesday than on Saturday?

Answer: (a) _____

(b) What is the average (mean) number of pizzas sold per day?

Answer: (b) _____

19. Find the values of A, B and C in the following addition sum.

```
  C 6 7
  7 4 A
  8 B 4  +
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2 0 0 6
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Answer: A = _____ B = _____ C = _____

20. There are 200 sheets of paper in a pad. The pad is 1.6cm thick. Find the thickness of one sheet.

(a) in cm

Answer: (a) _____cm

(b) in mm

Answer: (b) _____mm

21. Exactly one of these statements is correct. Which one?

A $43^2 + 56^2 = 4981$ **B** $55^2 + 66^2 = 7387$

C $77^2 + 22^2 = 6415$ **D** $44^2 + 63^2 = 5905$ **E** $34^2 + 51^2 = 3756$

Answer: _____

22. I have 3 cats—Fred, Gary and Harry. When I weigh Fred and Gary they come to 12kg more than Harry. When I weigh Gary and Harry they weigh 8kg more than Fred and when I weigh Fred and Harry they weigh 14kg more than Gary. What is the combined weight of all three cats?

Answer: _____kg

Now check through your work carefully!