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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?

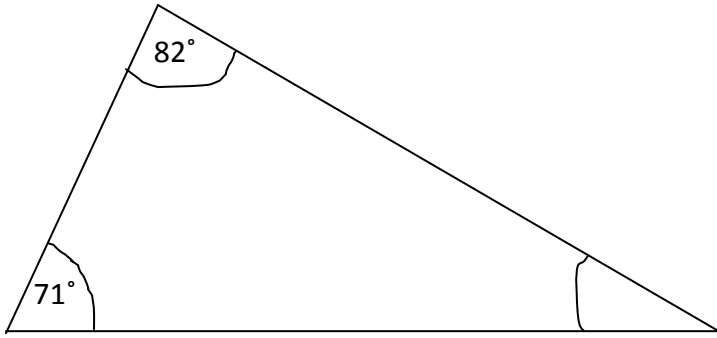
Answer: (b) \_\_\_\_\_

4.  $t \times 0.805 = 8050$

What is the value of  $t$ ?

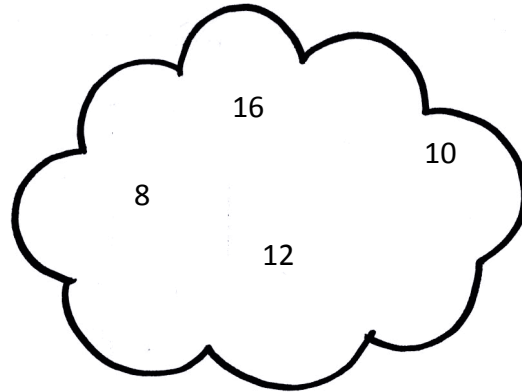
Answer:  $t =$  \_\_\_\_\_

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) \_\_\_\_\_  $\div$  \_\_\_\_\_

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)  $8 - x = 2$

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.

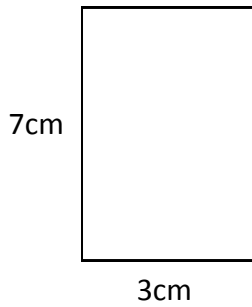
Answer: \_\_\_\_\_ days

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

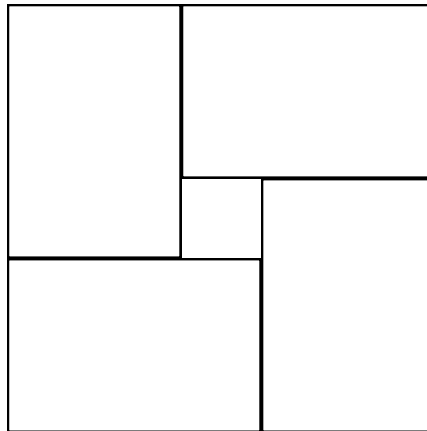
Answer: \_\_\_\_\_ hours \_\_\_\_\_ mins

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.

$$22 - 7 \times 4 = 45$$

$$10 \times 2 + 7 \times 7 = 69$$

$$12 + 3 \times 7 - 3 = 30$$

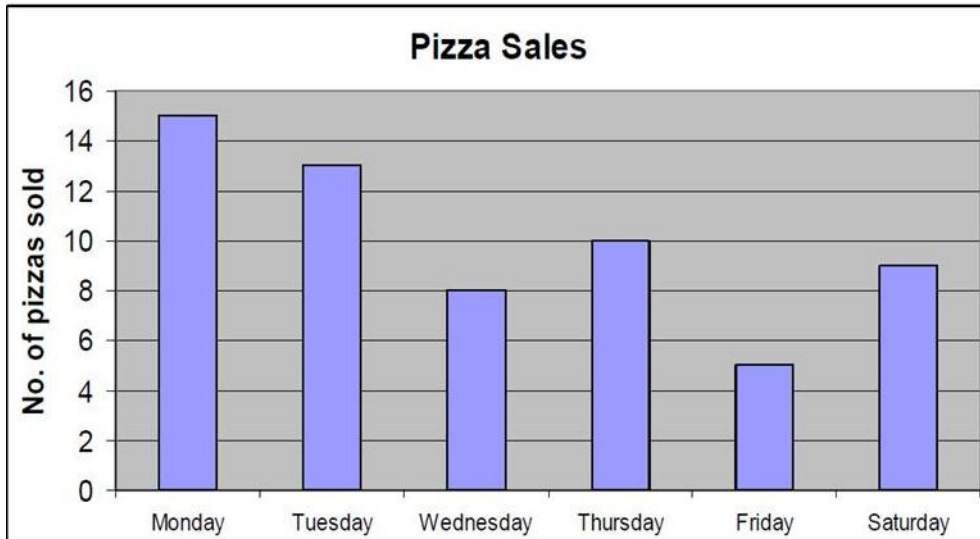
$$30 \div 3 + 2 = 6$$

$$24 \div 4 - 3 \times 2 = 0$$

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.

$$\begin{array}{r} C\ 6\ 7 \\ 7\ 4\ A \\ \underline{8\ B\ 4} + \\ 2\ 0\ 0\ 6 \end{array}$$

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!**