ENTRANCE EXAMINATIONS

24 FEBRUARY 2025

MATHEMATICS

Time: 1 hour and 30 minutes

Instructions to examinees

1. Read each question and the related instructions carefully before answering.
2. If you find a questions difficult, move on to the next one and come back later, if you have time.
3. We prefer writing with a pen for better readability, but you can also use a pencil.
4. Show all your workings where required.
5. Answer **ALL** questions in the space provided.
6. The mark for each question is indicated in the bracket.
7. The examination consists of 20 questions.
8. The total number of marks is 100.
9. The use of correction fluid (tip-ex) is **prohibited**.
10. The use of any calculator and any other electronic devices is **prohibited** during the examination.

Good Luck!

1. Evaluate the following.

(a) $36 + 100 \div (9 \times 3 - 2) =$

Answer: ..... [4]

(b) $8 \times 0.3 - 224 \div 100 =$

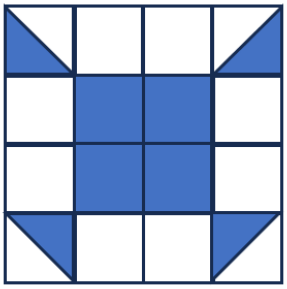
Answer: ..... [3]

(c) $12 \div 1\frac{1}{3} - \frac{1}{8} \times 16 =$

Answer: ..... [5]

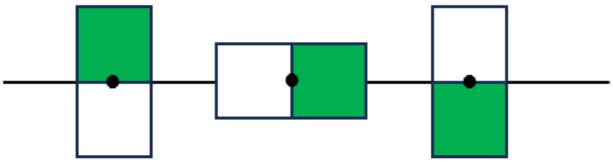
[Total: 12 marks]

2. (a) Find what part of the shape is shaded.

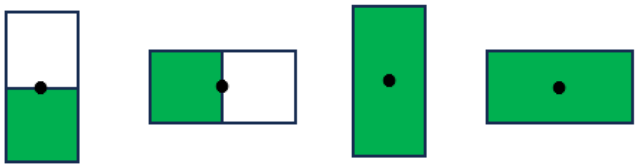


Answer: ..... [2]

(b) A pattern is given below.



Which figure from the following (**A, B, C** and **D**) follows the above pattern?



A **B** **C** **D**

Answer: ..... [1]

[Total: 3 marks]

3. (a) Fill in the missing number, so that the following equality is true.

$$15 - (24 \div \square) + 6 \times 3 = 30$$

[2]

(b) Write the correct symbol $>$, $<$ or $=$ in the box.

44% ☐ 0,40

[1]

[Total: 3 marks]

4. Georgia made 60 cookies that cost her €50.
She put the cookies in boxes of six and sold them for €7 per box.

Calculate the percentage profit Georgia made from selling all of the boxes.

Answer: ..... [5]

[Total: 5 marks]

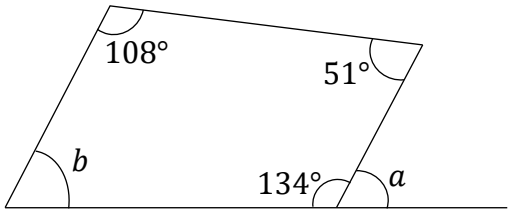
5. A car driver wants to cover a distance of 30 km in half an hour.
For the first 15 minutes he travels at a constant speed of 80 km/h.
What should his speed be for the remaining time so that he covers the distance he wants?

Answer: ..... **km/h** [5]

[Total: 5 marks]

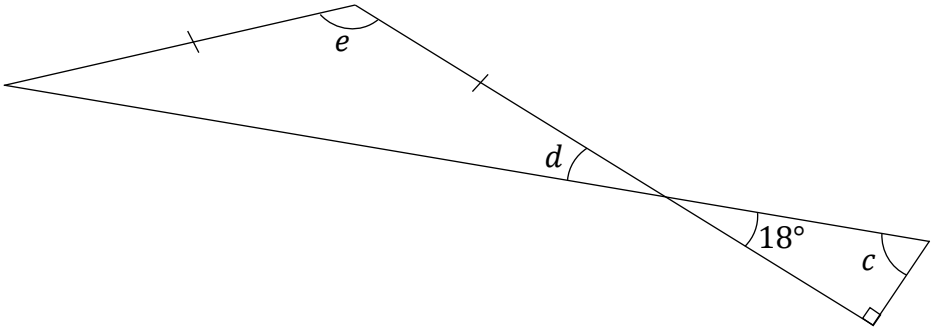
6. Find the missing angles marked with letters.

(a)



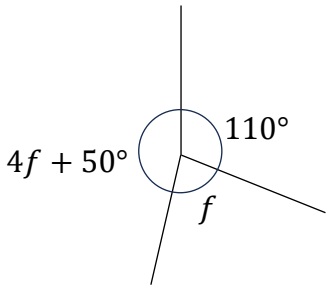
Answer: $a =$ .....° $b =$.....° [2]

(b)



Answer: $c =$ .....° $d =$.....° $e =$.....° [3]

(c)



Answer: $f =$ .....° [3]

[Total: 8 marks]

7. In a factory that produces plastic cups, a machine can produce 128 identical cups in 2 hours and 40 minutes.
How many cups can the machine produce in 20 minutes?

Answer: ..... [4]

[Total: 4 marks]

8. A shepherd counts the number of sheep on his farm. Each time he finds a number between 58 and 70. If he divides the sheep into groups of three, ten, or fifteen, there are no sheep left over.
How many sheep does the shepherd have?

Answer: ..... [2]

[Total: 2 marks]

9. Giannis wants to buy a mobile phone worth €600. The electrical shop offers a 15% discount. How much will Giannis pay?

Answer: €..... [3]

[Total: 3 marks]

10. Orestis' grades in the mathematics tests were 16, 18, 17 and 11.

(a) Find Orestis' average grade.

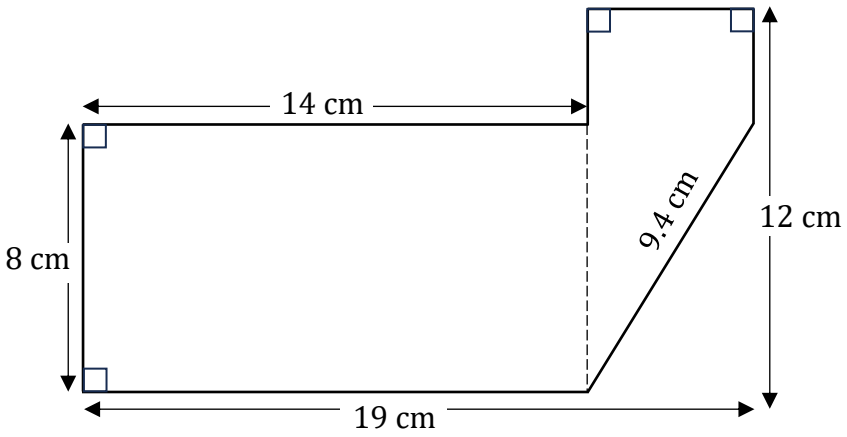
Answer: ..... [3]

(b) Orestis is about to take a final mathematics test. He wants his average grade across the five tests to be 16.
What grade does he need to achieve in the final test?

Answer: ..... [3]

[Total: 6 marks]

11. A shape is given below.



Calculate:

(a) the perimeter,

Answer: ..... **cm** [3]

(b) the area.

Answer: ..... **cm^2** [6]

[Total: 9 marks]

12. (a) There are 5 cards in an envelope.
Each card displays the number 10 or the number 20, as shown in the diagram below.

Eleni chooses a card from the envelope at random.

What is the probability that the card displays the number:

(i) five,

Answer: ..... [1]

(ii) twenty.

Answer: ..... [2]

(b) Eleni randomly selects a card from the envelope that displays the number 10, and does not put it back in the envelope.
Costas will then randomly select a card.
Find the probability that Costas selects a card from the same envelope that displays the number 20.

Answer: ..... [2]

[Total: 5 marks]

13. The pictogram shows the number of donuts that Marios sold over 6 days.

Day	Donuts
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

 = 4 donuts

(a) How many donuts did Marios sell on Monday?

Answer: ..... [2]

(b) How many more donuts did Marios sell on Saturday compared to Wednesday?

Answer: ..... [2]

[Total: 4 marks]

14. A runner participated in a charity road race.

He covered $\frac{1}{3}$ of the route running at a fast pace, $\frac{1}{4}$ of the route running at a moderate pace and the rest of the route walking.

If he covered 15 km walking, what is the total distance that the runner covered in the charity road race?

Answer: ..... **km** [5]

[Total: 5 marks]

15. Christos is looking for a job as a waiter in a restaurant for five days during the Christmas holidays.

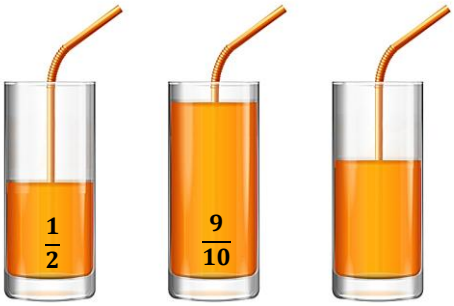
- The restaurant «THE TASTY» offers a wage of €20 per day.
- The restaurant «THE BITE» offers a wage of €4 for the first day, and for the rest of the days the wage will double every day.

Which restaurant offers the best wage in total and by how much?

Answer: **Restaurant**: ..... **€**..... [6]

[Total: 6 marks]

16. We have three identical glasses with orange juice.



Initially, the first glass is $\frac{1}{2}$ full.

The second glass is $\frac{9}{10}$ full.

Using the amount of orange juice from the second glass, we completely fill the first and the third glass, without any juice being left over from the second glass.

What part of the third glass was originally filled with orange juice?

Answer: ..... [4]

[Total: 4 marks]

17. Mr Iakovos wants to paint the interior of his house.
The salesman informed him that each litre of paint can cover a surface of 10 square metres.
The paint is only available in packs of 6 litres, and each pack costs €37.

If the total surface that Mr Iakovos wants to paint is 380 square metres, what will the total cost of painting the interior of his house be?

Answer: € ..... [5]

[Total: 5 marks]

18. Three *consecutive* odd numbers, **A, B** and **C**, are given below.

A **B** **C**

The sum of these numbers is 33.

Find the numbers **A, B** and **C**.

Answer: **A** = ... **B** =..... **C** = ... [2]

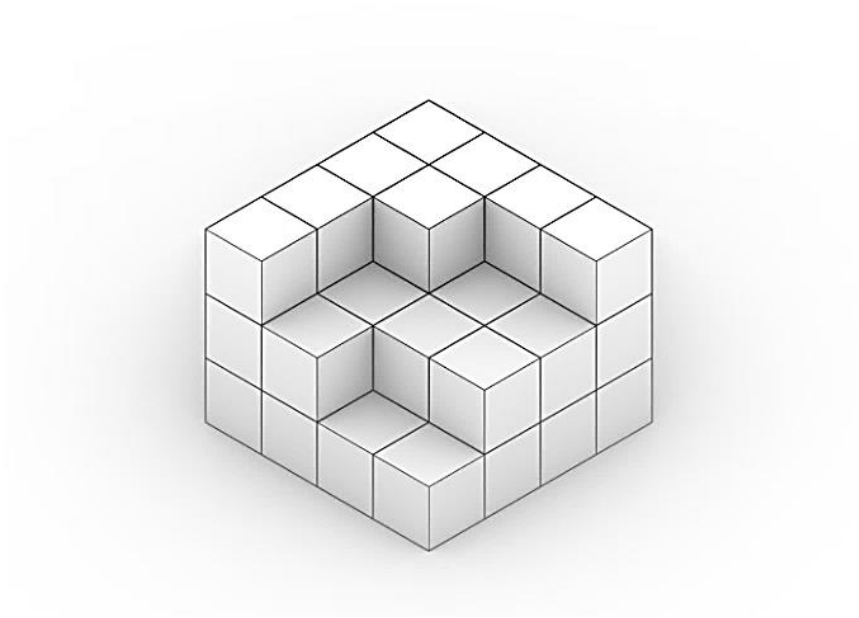
[Total: 2 marks]

19. George bought 3 pencils at €0.45 each, 6 pens at €1.15 each, and a certain number of notebooks that cost €1.50 each.
He paid with a €20 note and got €5.75 change.
How many notebooks did George buy?

Answer: ..... [6]

[Total: 6 marks]

20. Maria used identical cubes, with an edge length of 1 cm, to form the shape shown below.



Find how many additional such cubes Maria needs to add in the shape above to form a cube with an edge length of 4 cm.

Answer: ..... [3]

[Total: 3 marks]

END OF EXAMINATION