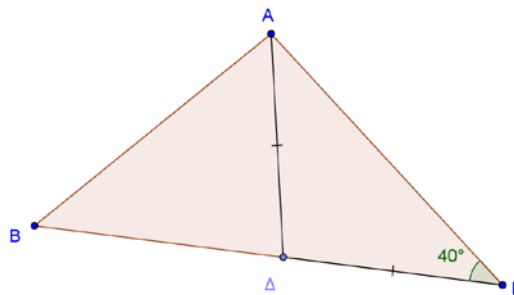


1. How many hours are there in the period from 6:45 am to 11:45 pm in the same day?
- A. 5                      B. 17                      Γ. 24                      Δ. 29                      E. 41
2. If  $x$  is between  $1 - \frac{1}{5}$  and  $1 + \frac{1}{5}$ , then  $x$  could equal either of the following except:
- A. 1                      B.  $\frac{5}{4}$                       Γ.  $\frac{9}{10}$                       Δ.  $\frac{10}{11}$                       E.  $\frac{101}{100}$
3. Three times a number less 7 is 32. What is twice the number?
- A. 13                      B. 17                      Γ. 26                      Δ. 32                      E. 39
4. The average value for the weekly expenses of Andreas, Vasiliki, Georgia and Demetris is 54 euros. The average value for the weekly expenses of Andreas, Vasiliki and Demetris is 57 euros. How much does Georgia spend?
- A. 45                      B. 50                      Γ. 55                      Δ. 56                      E. 58

5. In the figure below  $A\Delta$  is the bisector of angle A and  $A\Delta = \Delta\Gamma$ . What is the measure of angle B?



- A.  $40^\circ$                       B.  $50^\circ$                       Γ.  $60^\circ$                       Δ.  $70^\circ$                       E. none of these
6. Which of the following numbers is divisible by 2 and 7?
- A. 362                      B. 363                      Γ. 364                      Δ. 365                      E. 366

7. From the set of digits {1, 2, 5, 8, 9}, how many odd 3-digit integers can be formed?  
(Assume that no digit may be used more than once.)

- A. 75                      B. 60                      Γ. 48                      Δ. 36                      E. 27

8. Which of the following calculations yields the wrong result?

- A.  $4 \times 5 + 67 = 45 + 6 \times 7$                       B.  $3 \times 7 + 48 = 37 + 4 \times 8$   
 Γ.  $6 \times 3 + 85 = 63 + 8 \times 5$                       Δ.  $2 \times 5 + 69 = 25 + 6 \times 9$   
 E.  $9 \times 6 + 73 = 96 + 7 \times 3$

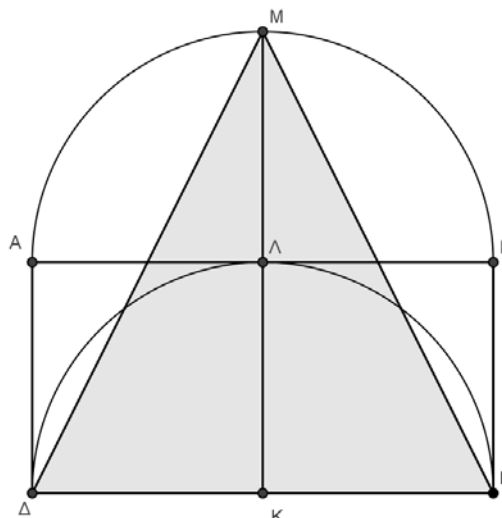
9. If  $\frac{1}{2} + \frac{2}{3} + \frac{3}{\psi-1} = \frac{23}{12}$  then  $\psi =$

- A. 2                      B. 3                      Γ. 4                      Δ. 5                      E. 9

10. For  $x \neq 0$ , let  $\boxed{x}$  be defined by  $\boxed{x} = \frac{x}{x + \frac{1}{x}}$ . What is the value of  $\boxed{\frac{1}{2}}$ ?

- A.  $\frac{1}{5}$                       B.  $\frac{1}{2}$                       Γ.  $2\frac{1}{2}$                       Δ. 2                      E. 5

11. In the figure below  $AB\Gamma\Delta$  is a rectangle with  $B\Gamma = 5$  cm. Arcs  $AMB$  and  $\Delta\Lambda\Gamma$  are semicircles with diameters  $AB$  and  $\Delta\Gamma$  respectively.  $M$  and  $\Lambda$  are the midpoints of the semicircles  $AMB$  and  $\Delta\Lambda\Gamma$  respectively. The area of triangle  $\Delta M\Gamma$  is:

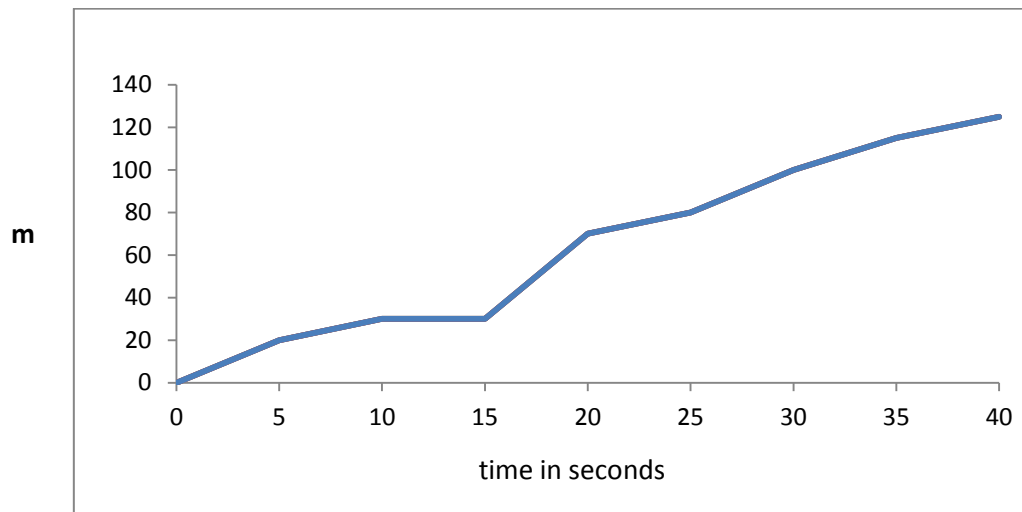


- A.  $12,5 \text{ cm}^2$     B.  $25 \text{ cm}^2$     Γ.  $50 \text{ cm}^2$     Δ.  $100 \text{ cm}^2$     E. none of these

12. If  $K = 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32}$  and  $\Lambda = 1 + \frac{1}{2}K$  then  $\Lambda$  exceeds  $K$  by:

- A.  $\frac{1}{4}$       B.  $\frac{1}{8}$       Γ.  $\frac{1}{16}$       Δ.  $\frac{1}{32}$       E.  $\frac{1}{64}$

13. The following graph represents the distance (in meters) covered by a car in 40 seconds. In which of the following 5 second intervals has the car travelled the longest?



- A. 10-15      B. 15-20      Γ. 20-25      Δ. 25-30      E. 30-35

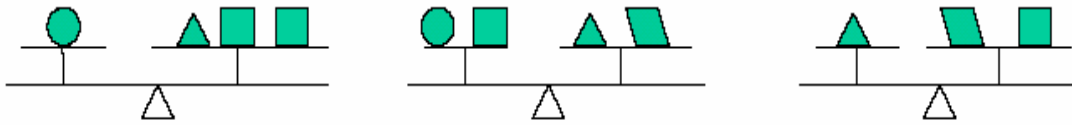
14. At central High School, the athletic club has 15 members and the music club has 12 members. If a total of 13 students belong to only one of the two clubs, how many students belong to both clubs?

- A. 2      B. 6      Γ. 7      Δ. 12      E. 14

15. Which of the following is the largest product?

- A.  $9,999 \times 9$   
B.  $999,9 \times 99$   
Γ.  $99,99 \times 999$   
Δ.  $9,999 \times 9,999$   
E.  $0,9999 \times 99,999$

16. The diagrams below show three scales.



How many squares will balance the circle?

- A. 3                      B. 4                      Γ. 5                      Δ. 6                      E. 7

17. A rectangle has length 25 cm and width 15 cm. If we increase the length by 20% and we decrease the width by 20% then the area of the rectangle is going to

- A. increase by  $20 \text{ cm}^2$   
 B. decrease by  $20 \text{ cm}^2$   
 Γ. be the same as the initial case  
 Δ. increase by  $15 \text{ cm}^2$   
 E. decrease by  $15 \text{ cm}^2$

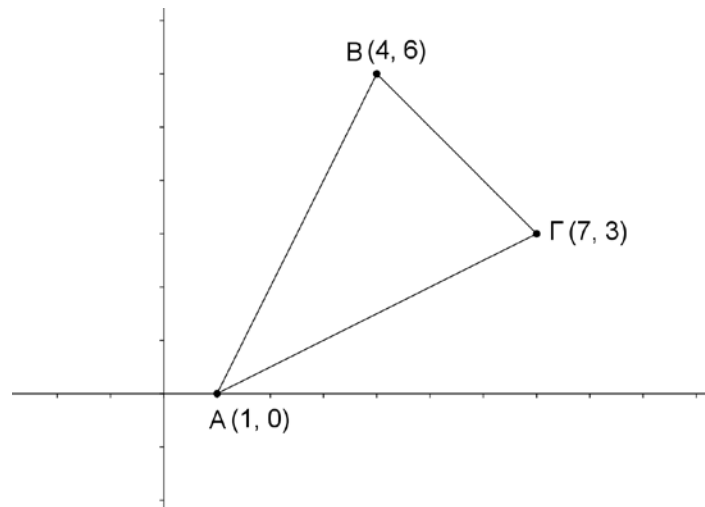
18. The road that connects two cities is uphill. The speed of a motorcyclist is constant and when it's travelling uphill it is by  $20 \frac{\text{km}}{\text{h}}$  less than the speed when travelling downhill. It takes 3 hours for the motorcyclist to travel from one city up to the other and it takes 2 hours to return. What is the distance, in kilometers, between the two cities?

- A. 40                      B. 60                      Γ. 80                      Δ. 100                      E. 120

19. During a test Constantinos solved correctly 24 out of 25 mathematical problems. In another test he solved twice as many problems but his grade was half the original. How many problems were in the second test?

- A. 25                      B. 48                      Γ. 50                      Δ. 75                      E. 100

20. In the figure below find the area of triangle ABΓ.

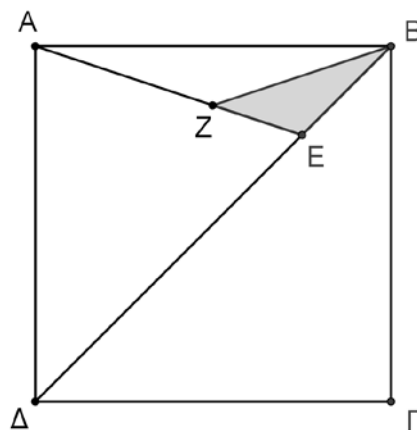


- A.  $13\frac{1}{2}$       B. 12      Γ. 11      Δ. 9      E.  $9\frac{1}{2}$

21. If the sum of  $\frac{1}{2}$  of an even integer and  $\frac{2}{3}$  of the next consecutive even integer is equal to 27, what is the odd integer between these two even integers?

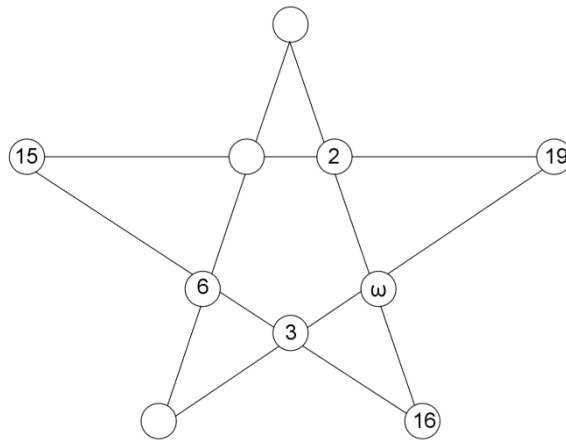
- A. 13      B. 17      Γ. 23      Δ. 25      E. 26

22. In the figure below ABΓΔ is a square with a side of 12 cm. If  $\Delta E = 3 \cdot BE$  and  $AZ = 2 \cdot ZE$ , then the area of triangle BZE, in  $\text{cm}^2$ , is:



- A. 3      B. 6      Γ. 8      Δ. 9      E. none of these

23. In the figure below the sum of all numbers in any line is the same. Find the value of  $\omega$ .



- A. 5      B. 17      Γ. 13      Δ. 40      E. none of these

24. A number divided by 9 gives a remainder of 8, divided by 8 gives a remainder of 7, divided by 7 gives a remainder of 6 and so on. In the end the number gives a remainder of 1, when divided by 2. Find the number.

- A. 2517      B. 2519      Γ. 2520      Δ. 2521      E. none of these

25. In a box there are 50 white and 40 red balls. Which of the following statements increase the probability of selecting, at random, a red ball?

- I. add another 10 white and another 10 red balls in the box
- II. add another 10 red balls in the box
- III. remove 10 white balls from the box
- IV. remove 10 white and 10 red balls from the box

- A. statement I
- B. statements II and III
- Γ. statements I and IV
- Δ. statements I, II and III
- E. none of these