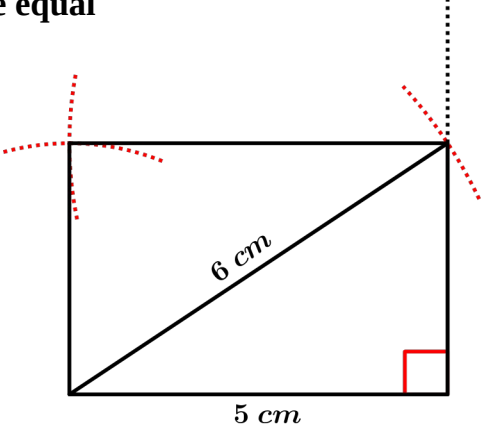
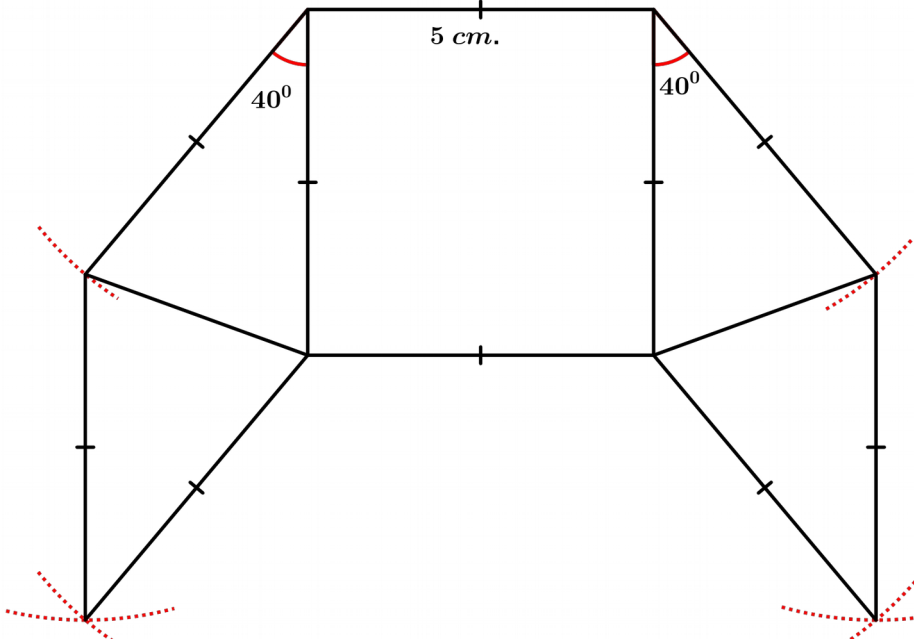
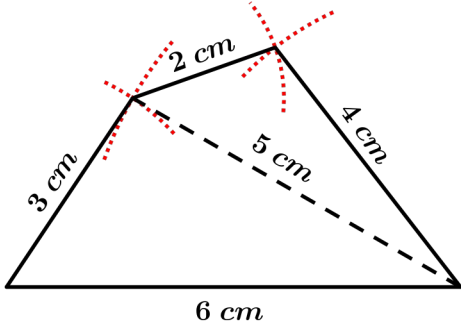


HALF YEARLY EVALUATION 2023 - 2024

A	MATHEMATICS EM – ANSWER KEY	E -803
Qn no.	Key	Score
Each questions from 1 to 5 carries 2 scores. (Answer any 4)		
1	a) $\angle C = 55^\circ$ b) $\angle A = 180^\circ - (55^\circ + 55^\circ) = 70^\circ$	1 1 2
2	a) An outer angle = $180^\circ - 135^\circ = 45^\circ$ b) Number of sides = $\frac{360^\circ}{45^\circ} = 8$	1 1 2
3	$(100 + 1)^2 = 100^2 + 1^2 + 2 \times 100 \times 1$ $= 10201$	1 1 2
4	a) Number of boys = $21 \times \frac{4}{3} = 28$ b) Total number of students = $28 + 21 = 49$	1 1 2
5	a) $\angle AOD = 90^\circ$ b) $AD = \sqrt{4^2 + 3^2} = 5 \text{ cm}$	1 1 2
Each questions from 6 to 11 carries 3 scores. (Answer any 4)		
6	a) Amount get after 2 years = $20000 \left(1 + \frac{6}{100}\right)^2 = 22472 \text{ Rs}$ b) Interest = $22472 - 20000 = 2472 \text{ Rs}$	1 2 3
7	a) length + breadth = $\frac{44}{2} = 22 \text{ m}$ b) $4 \times \text{breadth} + 2 = 22$ breadth = $\frac{20}{4} = 5 \text{ m}$, length = $22 - 5 = 17 \text{ m}$	1 1 1 3
8	a) $\angle AOC = 180^\circ - 120^\circ = 60^\circ$ b) $\angle OAC = \frac{180^\circ - 60^\circ}{2} = 60^\circ$ [OA = OC] c) Radius = 5 cm	1 1 1 3
9	a) $(a + 2)(a - 2) = a^2 - 2^2 = a^2 - 4$ b) $5.6^2 - 4.4^2 = (5.6 + 4.4)(5.6 - 4.4) = 10 \times 1.2 = 12$	1 2 3

10	<p>a) (i) Diagonals are equal</p> <p>b)</p> 	1	3
11	<p>a) AP is $\frac{4}{7}$ part of AB .</p> <p>b) PB is $\frac{3}{7}$ part of AB .</p> <p>b) AP is $\frac{4}{3}$ times PB .</p>	1 1 1	3
Each questions from 12 to 18 carries 4 scores. (Answer any 5)			
12	<p>Amount in account after 1 year = $40000 \left(1 + \frac{5}{100}\right)^2$</p> <p style="text-align: center;">$= 44100 \text{ Rs}$</p> <p>a) Balance amount = $44100 - 15000 = 29100 \text{ Rs}$</p> <p>b) Amount in account after 6 months = $29100 \left(1 + \frac{5}{100}\right) = 30555 \text{ Rs}$</p>	2 1 1	4
13		4	4

14	<p>a) Pair 1 = 8 , 24 Pair 2 = 10 , 22</p> <p>b) $(8 + 24) - (10 + 22) = 0$</p> <p>c) $[x + (x + 16)] - [(x + 2) + (x + 14)] = 2x + 16 - (2x + 16) = 0$</p>	1 1 2	4
15		4	4
16	<p>a) Price after 1 year = $50000 \left(1 + \frac{5}{100}\right) = 52500 \text{ Rs}$</p> <p>b) Price after 2 years = $50000 \left(1 + \frac{5}{100}\right)^2 = 55125 \text{ Rs}$</p> <p>Increase in the price = $55125 - 50000 = 5125 \text{ Rs}$</p>	1 2 1	4
17	<p>a) $(3 + y)^2 + (3 - y)^2 = 2(3^2 + y^2)$</p> <p>b) $(x + 1)^2 + (x - 1)^2 = 2(x^2 + 1^2)$</p> <p>c) $21^2 + 19^2 = (20 + 1)^2 + (20 - 1)^2 = 2(20^2 + 1^2)$</p>	1 1 2	4
18	<p>a) $5 \times 7 = (5 + 1)^2 - 1$</p> <p>b) $10 \times 12 = (10 + 1)^2 - 1$</p> <p>c) $13 \times 15 = (13 + 1)^2 - 1$</p> <p>d) $x \times (x + 2) = (x + 1)^2 - 1$</p>	1 1 1 1	4