

INTEGRATED†

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Class: VII. MATHEMATICS

4. PERIMETER AND AREA

Teaching Task (JEE mains level)

01. Given $a = 8 \text{ cm}$
perimeter $= 4a = 4 \times 8 = 32 \text{ cm}$ Ans: A
02. Area $= l \times b = 12 \times 5 = 60 \text{ cm}^2$ Ans: A
03. Area $= \frac{1}{2} \times b \times h = \frac{1}{2} \times 10 \times 6 = 30 \text{ cm}^2$ Ans: B
04. perimeter $= 3a = 54 \Rightarrow a = 18$ Ans: C
05. $2(l+b) = 50 \Rightarrow 15+b = 25$
 $\Rightarrow 2(15+b) = 50 \Rightarrow b = 10$ Ans: A
06. Area $= a^2 = 15^2 = 225$ Ans: C
07. Area $= \cancel{12} \times b \times h = 48 \mid h = 4$
 $\Rightarrow 12 \times h = 48$ Ans: A
08. $\frac{1}{2} \times b \times h = 42 \mid h = 6$
 $\Rightarrow 14 \times h = 84$ Ans: A
09. Area $= \frac{1}{2} \times d_1 \times d_2 = \frac{1}{2} \times 10 \times 24 = 120 \text{ cm}^2$ Ans: A
10. Area $= b \times h = 9 \times 5 = 45 \text{ cm}^2$ Ans: A
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11. perimeter $= 4a = 4 \times 6 = 24$, Area $= b^2 = 36$ Ans: A, B

12 Area = $10 \times 4 = 40 \text{ cm}^2$

(2)

Perimeter = $2(10 + 4) = 28 \text{ cm}$

Ans: A, B

13 Statement I: Area = $\frac{1}{2} \times 10 \times 6 = 30$ (True)

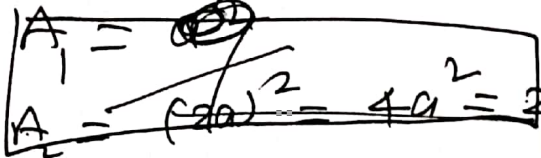
Statement II: $A_1 = \frac{1}{2} \times b \times h$

$A_2 = \frac{1}{2} \times b \times (2h) = b \times h$

$= 2\left(\frac{1}{2} \times b \times h\right)$ (True)

$= 2A_1$ ~~Ans: A~~
Ans: A

14 Statement I: Perimeter = $4a = 4 \times 12 = 48 \text{ cm}$ (True)

Statement II: 
 $A_1 = a^2$
 $A_2 = (2a)^2 = 4a^2 = 4A_1$

$P_1 = 4a$

$P_2 = 4(2a) = 2(4a) = 2P_1$ (True) Ans: A

15 Assertion: Area = $\frac{1}{2} \times 12 \times 5 = 30 \text{ cm}^2$ (True)

Ans: A

Reason: Conceptual (True)

16 Assertion: Perimeter = $4a = 4 \times 9 = 36$ (False)

Ans: C

Reason: Conceptual (True)

17. Perimeter = $2(18 + 12) = 2 \times 30 = 60 \text{ m}$ Ans: B

18 Total distance = $3 \times 60 = 180 \text{ m}$ Ans: B

19. Area = $\frac{1}{2} \times 14 \times 8 = 56 \text{ cm}^2$

Ans: B

20 Area of second triangle = 2×56 (3)
 $\therefore \frac{1}{2} \times 14 \times h = 2 \times 56$
 $\Rightarrow h = 16 \text{ cm}$ Ans: B

21 Perimeter = $4a = 4 \times 15 = 60 \text{ cm}$ Ans: 60

22 Area = $l \times b = 12 \times 8 = 96 \text{ cm}^2$ Ans: 96

23 a) Perimeter = $4a = 4 \times 10 = 40 \text{ cm}$ (q)
 b) Perimeter = $2(12+5) = 34 \text{ cm}$ (r)
 c) Area = $\frac{1}{2} \times 8 \times 6 = 24 \text{ cm}^2$ (p)
 d) Parallelogram = $b \times h = 10 \times 5 = 50 \text{ cm}^2$ (s)
 Ans: q, r, p, s

24 a) Area = $\frac{1}{2} \times 12 \times 16 = 96 \text{ cm}^2$ (p)
 b) Area = $\frac{1}{2} \times 10 \times 24 = 120 \text{ cm}^2$ (r)
 c) Area = $\frac{1}{2} h(a+b) = \frac{1}{2} \times 5 \times (8+12) = 50$ (q)
 d) Perimeter = $4 \times 15 = 60 \text{ cm}$ (s) Ans: p, r, q, s

LEARNERS TASK (CUES)

01. Conceptual Ans: C

02 $A_1 = \frac{1}{2} \times b \times h$
 $A_2 = \frac{1}{2} \times (2b) \times h$
 $= b \times h$
 $= 2 \left(\frac{1}{2} \times b \times h \right) = 2 \times A_1$ Ans: A

03	Conceptual	Ans: B
04	Conceptual	Ans: C
05	Conceptual	Ans: B
06	Conceptual	Ans: A
07	Conceptual	Ans: C
08	perimeter $P_1 = 4a$ $P_2 = 4(2a) = 2(4a) = 2P_1$	Ans: A
09	Conceptual	Ans: C
10	Conceptual	Ans: A

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01.	perimeter	Ans: B
02	Area $= \frac{1}{2} \times h \times (a+b)$ $= \frac{1}{2} \times 5 \times (8+12)$	$= \frac{1}{2} \times 5 \times 20 = 50 \text{ cm}^2$ Ans: C
03	perimeter $= 7+8+9 = 24 \text{ cm}$	Ans: C
04	$2(l+b) = 60$ $2(l+10) = 60$	$l+10 = 30$ $l = 20$ Ans: B
05	perimeter $= 4 \times 13 = 52 \text{ cm}$	Ans: A
06	area $= \frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2$	Ans: A
07	$\frac{1}{2} \times 18 \times h = 90 \Rightarrow h = 10$	Ans: C
08	$a^2 = 169 \Rightarrow a = 13$	Ans: B

09. $20 \times h = 100 \Rightarrow h = 5 \text{ cm}$ Ans B

10. $\frac{1}{2} \times 9 \times (12 + b) = 108$
 $\Rightarrow 12 + b = 24 \Rightarrow b = 12 \text{ cm}$ Ans: C

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11. a) Area = $\frac{1}{2} \times 12 \times 5 = 30 \checkmark$
 b) Area = $60 \text{ cm}^2 \times$
 c) Area = $\frac{1}{2} \times 12 \times 10 = 60 \text{ cm}^2 \checkmark$
 d) Area = $\frac{1}{2} \times 6 \times 5 = 15 \text{ cm}^2 \checkmark$ Ans: A, C, D

12. a) Area = $\frac{1}{2} \times 5 \times (8 + 12) = 50 \text{ cm} \checkmark$
 b) Area = $100 \text{ cm}^2 \times$
 c) $8 + 12 = 20 \checkmark$
 d) Height = $20 \text{ cm} \times$ Ans: A, C

13. Statement I: Area = $15 \times 5 = 75 \text{ cm}^2$ (True)
Statement II: Perimeter = $2(15 + 5) = 40 \text{ cm}$ (False)
Ans: C

14. Statement I: Area = $\frac{1}{2} \times 6 \times (8 + 10)$
 $= 54 \text{ cm}$ (True) Ans
Statement II: Sum of ~~the~~ parallel sides = $8 + 10 = 18 \text{ cm}$
(True)
Ans: A

15. Assertion:

15. Assertion: Area of parallelogram = $b \times h = 10 \times 6$ ②
 $= 60 \text{ cm}^2$

Area of rectangle = $l \times b = 10 \times 6 = 60 \text{ cm}^2$
(True)

Reason: Conceptual (True) Ans: A

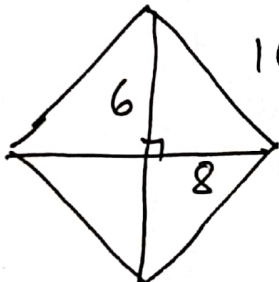
16. Assertion: Area = $\frac{1}{2} \times 4 \times (6+10) = 32 \text{ cm}^2$ (True)

Reason: Conceptual (False) Ans: C

17. Perimeter = $4a = 4 \times 25 = 100 \text{ m}$ Ans: C

18. Area = $a^2 = (25)^2 = 625 \text{ m}^2$ Ans: C

19. Area = $\frac{1}{2} \times 16 \times 12 = 96 \text{ cm}^2$ Ans: A

20.  $6^2 + 8^2 = x^2$
 $x^2 = 36 + 64 = 100$
 $\therefore x = 10$ Ans: A

21. Area = $\frac{1}{2} \times 14 \times 10 = 70 \text{ cm}^2$ Ans: 70

22. Area = $\frac{1}{2} \times 18 \times 24 = 216 \text{ cm}^2$ Ans: 216

23 a) Area = $25 \times 8 = 200 \text{ cm}^2$ (S)

b) Perimeter = $4 \times 12 = 48$ (r)

c) $\frac{1}{2} \times 16 \times h = 96 \Rightarrow h = 12$

d) Area = $12 \times 6 = 72$ (P)

Ans: S, r, P

- 24 a) Area = $l \times b = 15 \times 10 = 150 \text{ cm}^2$ (S) ①
b) Area = $8^2 = 64$ (T)
c) Area = $\frac{1}{2} \times 10 \times 8 = 40 \text{ cm}^2$ (Y)
d) Area = $12 \times 5 = 60 \text{ cm}^2$ (P) Ans: S, T, Y, P
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$\Rightarrow$ THE END $\Leftarrow$