gradeup

Sahi Prep Hai Toh Life Set Hai

QUADRILATERAL

Part-4

gradeup

Practice Questions

15 Question

gradeup

PRACTICE QUESTIONS

gradeup

Q1. In quadrilateral ABCD, producing side BA and DC at E and F and $\angle ABC = x°$, $\angle ADC = y°$, $\angle BCF = a°$, $\angle DAE = b°$ then $x + y = ?$

(a) $a + b$

(b) $2a + b$

(c) $2b + a$

(d) $a + 3b$

gradeup

Ans. (a)

gradeup

Q2. ABCD is a quadrilateral in which AC and BD are diagonals and diagonals intersect at O, then : AB + BC + CD + DA

(a) > 2(AC + BD)

(b) > AC + BD

(c) < 2(AC + BD)

(d) Both b & c

gradeup

Ans. (d)

gradeup

Q3. ABCD is a quadrilateral in which diagonal BD = 64 cm, AL ⊥ BD and CM ⊥ BD, AL = 13.2 cm and CM = 16.8 cm, Find the area of ABCD (in cm^2)?

(a) 422.4

(b) 690

(c) 537.6

(d) 960

gradeup

Ans. (d)

gradeup

Q4. The ratio of angles of a quadrilateral in order is 1 : 2 : 3 : 4 then the quadrilateral is :

(a) Parallelogram (b) Rectangle

(c) Rhombus (d) Trapezium

gradeup

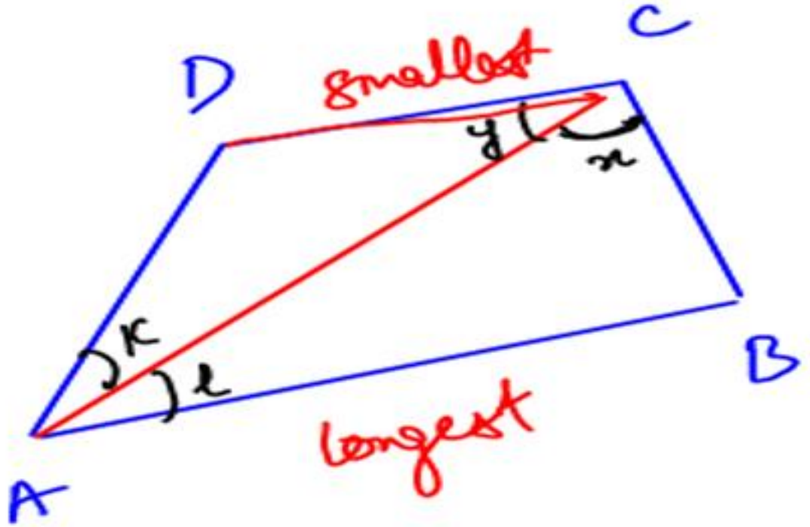
Ans. (d)

gradeup

Q5. ABCD is quadrilateral in which AB is greatest side and CD is smallest side then-

(a) $\angle C > \angle A, \angle D > \angle B$ (b) $\angle C > \angle B, \angle A > \angle D$

(c) $\angle C > \angle D, \angle A > \angle B$ (d) $\angle C > \angle D, \angle B > \angle A$



$\angle C > \angle A$

$\angle D > \angle B$

$\triangle ABC$

$AB > BC$

$x > l$ — (1)

$\triangle ACD$ $AD > CD$

$y > K$ — (2)

$x + y > l + K$

$\angle C > \angle A$

gradeup

Ans. (a)

gradeup

Q6. Area of a quadrilateral ACDE is 36 cm^2 If B is the mid point of AC. Find the area ΔABE of if AC || DE and BE || DC

(a) 10 cm^2

(b) 9 cm^2

(c) 12 cm^2

(d) Can't be determined

gradeup

Ans. (c)

gradeup

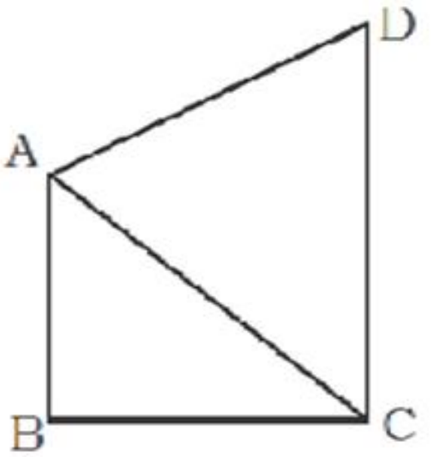
Q7. In the quadrilateral ABCD, $\angle B = 90°$ and $AD^2 = AB^2 + BC^2 + CD^2$, then find the measure of $\angle ACD$

(a) 45°

(b) 60°

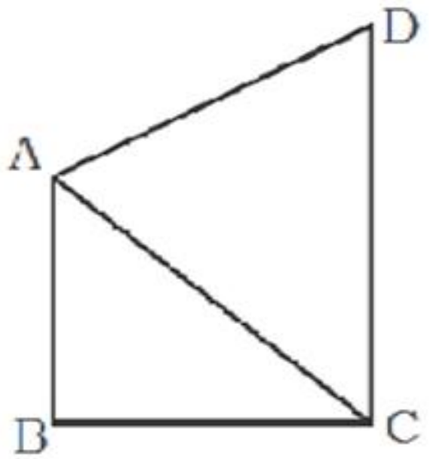
(c) 90°

(d) 30°



gradeup

Ans. (c)



gradeup

Q8. ABCD is are quadrilateral. A line from D parallel to digonal AC is cut at P of extended part of line BC. Find $\frac{\text{Area of } \Delta ABP}{\text{Area of } \square ABCD}$

(a) 1 (b) $\frac{1}{2}$ (c) $\frac{2}{1}$ (d) $\frac{1}{4}$

gradeup

Ans. (a)

gradeup

Q9. In a parallelogram ABCD, one side AB = 24 cm and second side AD = 16 cm. Distance between AB and DC is 10 cm. Therefore, distance between AD and BC will be ?

(a) 16 cm
(b) 18 cm
(c) 15 cm
(d) 26 cm

gradeup

Ans. (c)

gradeup

Q10. The length of the diagonal BD of the parallelogram ABCD is 18 cm. If P and Q are the centroid of the ΔABC and ΔADC respectively then the length of the line segment PQ is :

(a) 4 cm
(b) 6 cm
(c) 6 cm
(d) 12 cm

gradeup

Ans. (b)

gradeup

Q11. The adjacent sides of a parallelogram are 12 cm and 8 cm and its one diagonal is 10 cm then other diagonal is :

(a) 7.68 cm

(b) 10 cm

(c) $2\sqrt{79}$ cm

(d) 13 cm

gradeup

Ans. (c)

gradeup

Q12. Diagonals of a parallelogram are 10 cm and 24 cm respectively. If one of side is 13 cm, then the area of parallelogram is :

(a) 60 cm^2 (b) 120 cm^2

(c) 130 cm^2 (d) 240 cm^2

gradeup

Ans. (b)

gradeup

Q13. ABCD is a parallelogram AB is divided at P and CD at Q so that AP : PB = 3 : 2 and CQ : QD = 4 : 1 if PQ meets AC at R then AR =

(a) $\frac{2}{7}$ AC (b) $\frac{3}{7}$ AC (c) $\frac{4}{7}$ AC (d) $\frac{5}{7}$ AC

Recorded video

gradeup

Ans. (b)

gradeup

Q14. ABCD is a parallelogram. If E and F are two points situated on side DC and AD respectively. A_1 and A_2 are the area of ΔAEB and ΔBFC, then -

(a) $A_1 = A_2$ (b) $A_1 = 2A_2$ (c) $2A_1 = A_2$ (d) $2A_1 = 3A_2$

gradeup

Ans. (a)

gradeup

Q15. ABCD is a parallelogram in which diagonals AC and BD intersect at O. If E, F G and H are the mid points of AO, DO, CO and BO respectively, then the ratio of the perimeter of the quadrilateral EFGH to the perimeter of parallelogram ABCD is :

(a) 1 : 4 (b) 2 : 3 (c) 1 : 2 (d) 1 : 3

gradeup

Ans. (c)

gradeup

Q16. PQRS is a parallelogram. A is point on side PQ. Joining SA and RA such that it bisects $\angle PSR$ and $\angle QRS$, then SR is equal to -

(A) 2PQ
(B) 2QR
(C) QR
(D) 4PQ

gradeup

Ans. (b)

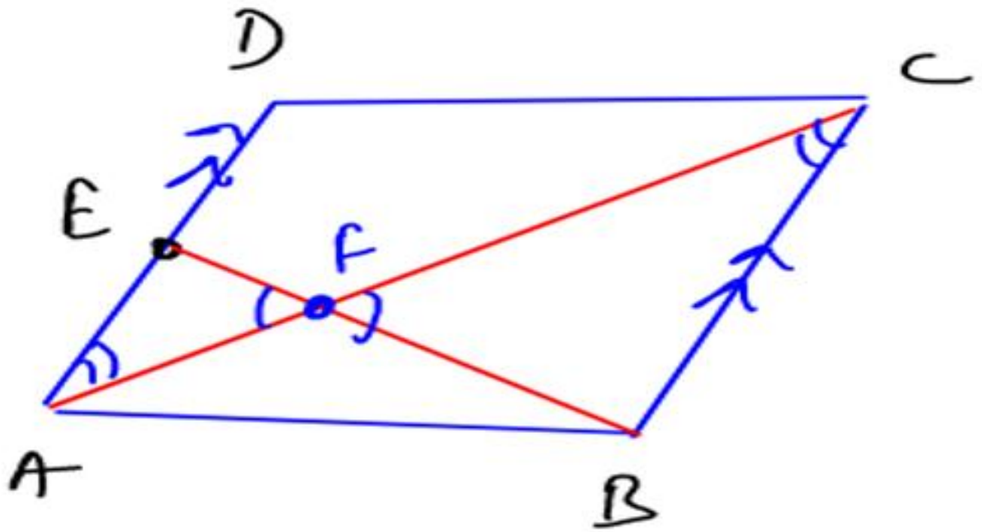
gradeup

Q17. In parallelogram ABCD, the line BE (where E is a point on AD) intersect AC at F then

(A) $EF \times FB = AE \cdot FC$ (B) $BF \times FA = EF \cdot FC$

(C) $AE \cdot FC = BC \cdot AF$ (D) $AE \cdot AB = BC \cdot FB$

B or C



$\Delta AFE \sim \Delta CFB$ (AA)

$$\frac{AF}{CF} = \frac{FE}{FB} = \frac{AE}{CB}$$

gradeup

Ans. (b)

gradeup

Q18. The side AB of a parallelogram ABCD is produced to E in such way that BE = AB. DE intersects BC at Q. The point Q divides BC in the ratio.

(a) 1 : 2
(b) 1 : 1
(c) 2 : 3
(d) 2 : 1

gradeup

Ans. (b)

gradeup

Q19. ABCD is parallelogram P and Q are the mid-points of sides BC and CD respectively. If the area of ΔABC is 12 cm^2, then the area of ΔAPQ is :

(a) 12 cm^2 (b) 8 cm^2

(c) 9 cm^2 (d) 10 cm^2

gradeup

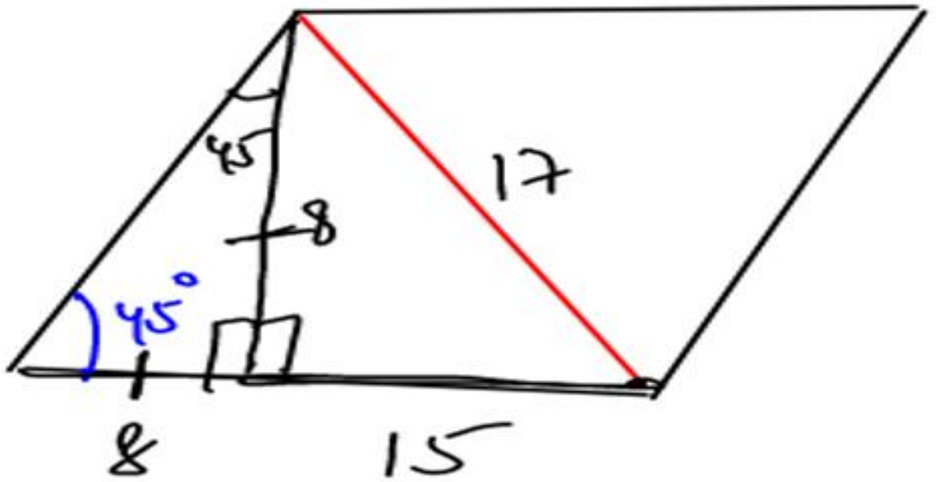
Ans. (c)

gradeup

Q20. One of the diagonal of a parallelogram is 17 cm and an angle of the parallelogram is 45°. If height of the parallelogram is 8 cm then area of the parallelogram is :

(a) 184 cm^2 (b) 88 cm^2

(c) 92 cm^2 (d) 104 cm^2



Area

23×8

$= 184 cm^2$

gradeup

Ans. (a)

gradeup

Q21. In a parallelogram ABCD, the mid-point of AB is H. The line parallel to DH and passing through B meets extended AD at K. If BC = 6 cm, then DK is-

(a) 10 cm
(b) 4 cm
(c) 8 cm
(d) 6 cm

gradeup

Ans. (d)

gradeup

Q22. In a parallelogram ABCD, M is the mid point of BD. BM is the angle bisector of $\angle B$. What is the value of $\angle$AMB?

(a) 30° (b) 45° (c) 60° (d) 90°

gradeup

Ans. (d)

gradeup

Q23. ABCD is a parallelogram in which AB = 10 cm, AD = 6 cm. Bisector of $\angle A$ meets DC at E and extended BC at F. Therefore, length of CF will be ?

(A) 4 cm (B) 2 cm (C) 6 cm (D) 8 cm

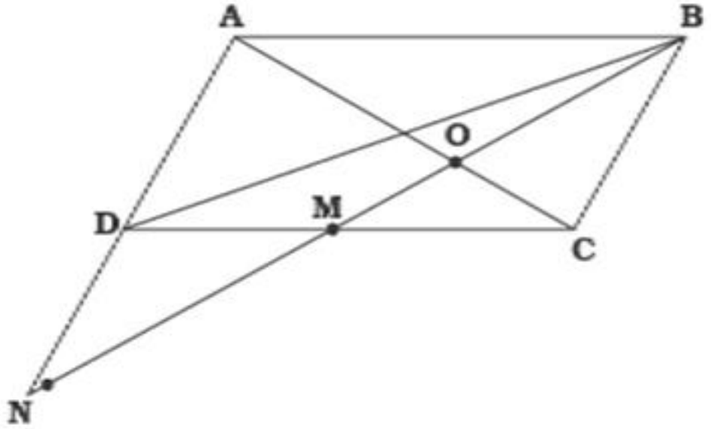
gradeup

Ans. (a)

gradeup

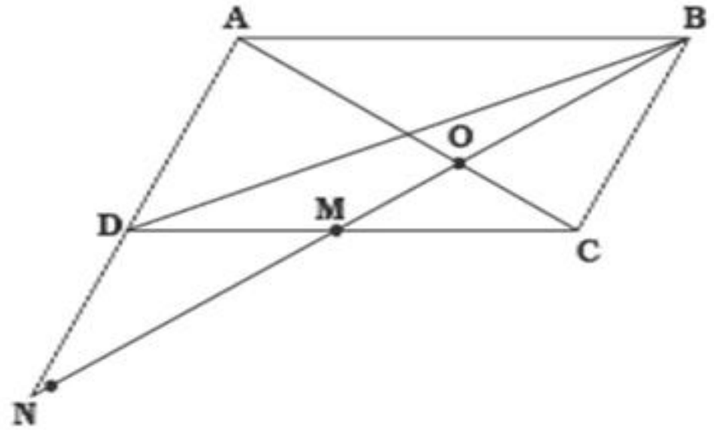
Q24. In the figure above, M is the mid-point of the side CD of the parallelogram ABCD. What is ON : OB ?

(a) 3 : 2
(b) 2 : 1
(c) 3 : 1
(d) 5 : 2



gradeup

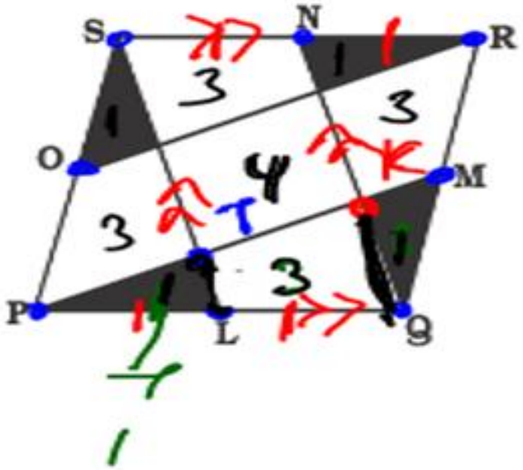
Ans. (b)



gradeup

Q25. In the parallelogram PQRS, L, M, N and O are mid points of sides PQ, QR, RS and SP respectively. PM, QN, RO and SL are joined. Find the ratio of the area of the darked region to the area the parallelogram PQRS.

(a) 1/5 (b) 1/4
(c) 4/15 (d) 1/6



Detailed Approach

① SNLQ : SN ∥ LQ & SN = LQ

∴ SNLQ is a ||gm

② △ PKQ LT ∥ KQ & L is a mid pt of PQ

T is a mid pt of PK

$\frac{\text{area } \triangle PTL}{\text{area of } \triangle PKQ} = \frac{1}{4}$

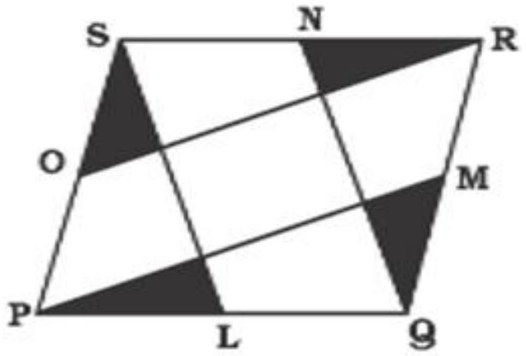
gradeup

(3) area of $\triangle PMQ = \frac{1}{4}$ area of ||gm PQRS

area of PQRS = 20

gradeup

Ans. (a)



gradeup

Q26. ABCD is a parallelogram in which O is the intersection point of its diagonals. P is a point on DO. If the area of ΔAPB is 24.5 cm^2, then find the area of ΔBPC.

(a) 19.5 cm^2

(b) 49 cm^2

(c) 24.5 cm^2

(d) Cannot be determined

gradeup

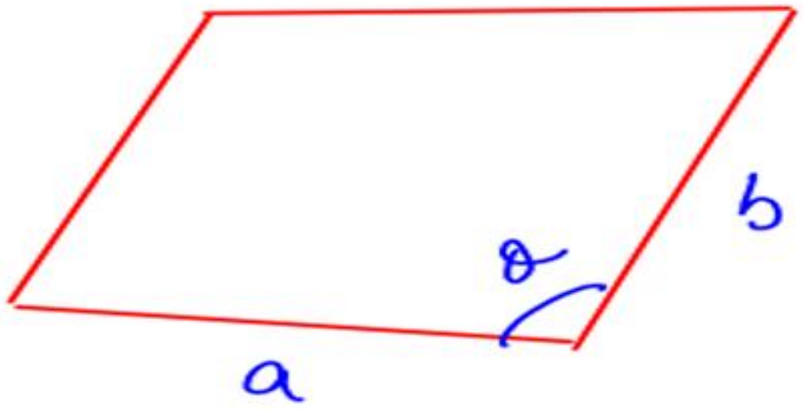
Ans. (c)

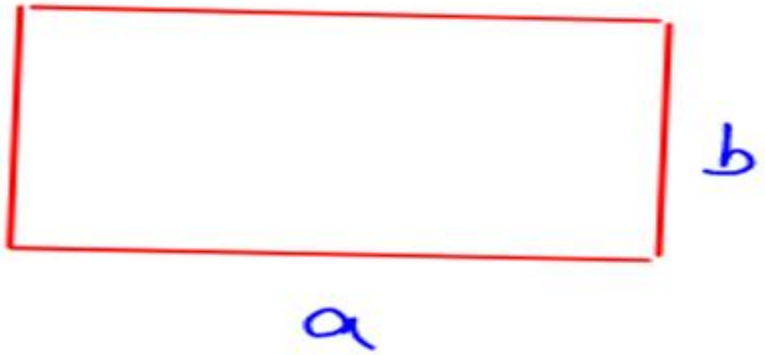
gradeup

Q27. If area of parallelogram is A whose sides are a and b and area of rectangle is B whose sides are a and b then –

(A) A > B (B) A = B

(C) A < B (D) A $\geq$ B





$ab \sin\theta \leq ab$

A B

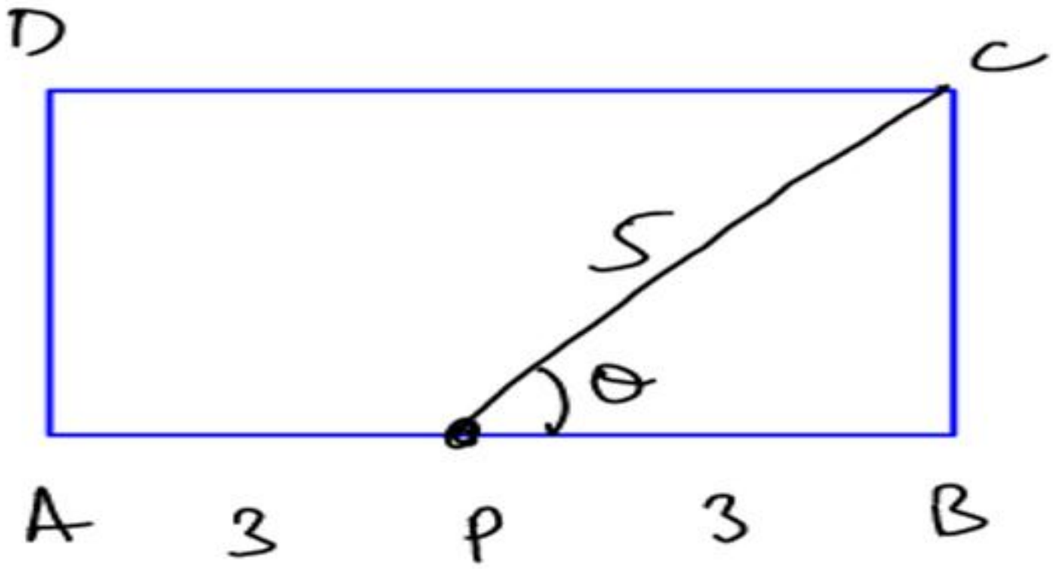
gradeup

Ans. (c)

gradeup

Q28. ABCD is a rectangle in which the ratio of the length of AB and BC is 3 : 2. If P is the mid-point of AB, then the value of sin ∠CPB is:

(a) $\frac{3}{5}$ (b) $\frac{2}{5}$ (c) $\frac{3}{4}$ (d) $\frac{4}{5}$



4

$\sin\theta = \frac{4}{5}$

gradeup

Ans. (d)

gradeup

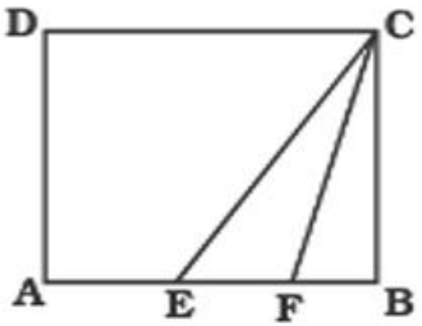
Q29. In the below diagram, ABCD is a rectangle with AE = 2EF = 3FB. What is the ratio of the area of the rectangle to that of the triangle CEF?

(a) 11 : 3

(b) 22 : 3

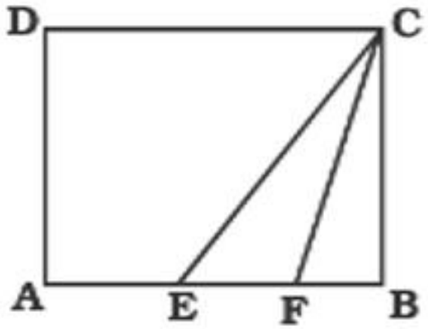
(c) 11 : 6

(d) None of these



gradeup

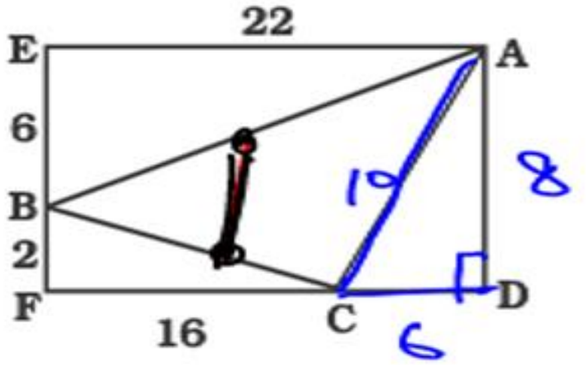
Ans. (b)



gradeup

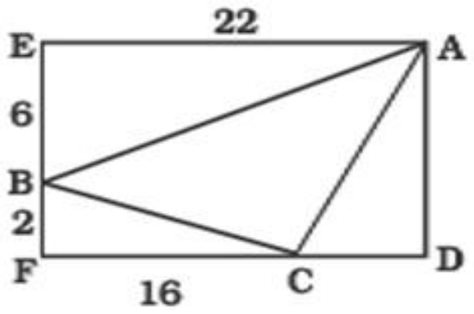
Q30. In the given figure. EADF is a rectangle and ABC is a triangle whose vertices lie on the sides of EADF. AE = 22, BE = 6 CF = 16 and BF = 2. Find the length of the line joining the mid-points to the side AB and BC

(a) $4\sqrt{2}$
(b) 5
(c) 3.5
(d) None of these



gradeup

Ans. (b)



gradeup

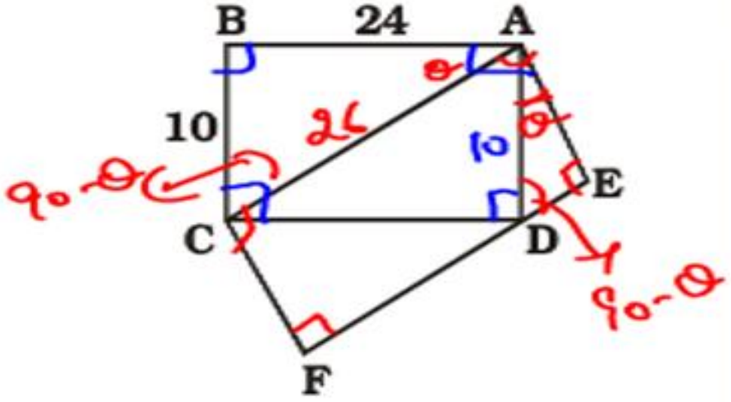
Q31. In the given fig., ABCD is a rectangle of dimensions 24 units and 10 units. AEFC is a rectangle drawn in such a way that diagonal AC of the first rectangle is one side and side oppsoite to it is touching the first rectangle at D as shows in the figure given above. What is the area of ΔAED.

(a) $\frac{3000}{169}$ sq. unit

(b) $\frac{6000}{169}$ sq. unit

(c) $\frac{1500}{169}$ sq. unit

(d) $\frac{2700}{169}$ sq. unit



AC = 26cm

$\Delta ABC \sim \Delta AED$

$\frac{24}{AE} = \frac{10}{ED} = \frac{26}{10}$

$AE = \frac{120}{13}$

$ED = \frac{50}{13}$

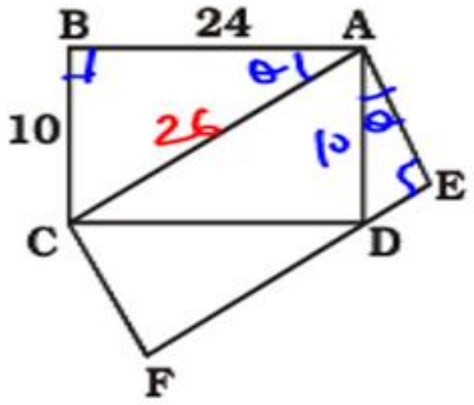
ΔAED

$\frac{1}{2} \times \frac{50}{13} \times \frac{120}{13}$

gradeup

Ans. (a)

II nd



area of Rectangle ABCD = 240

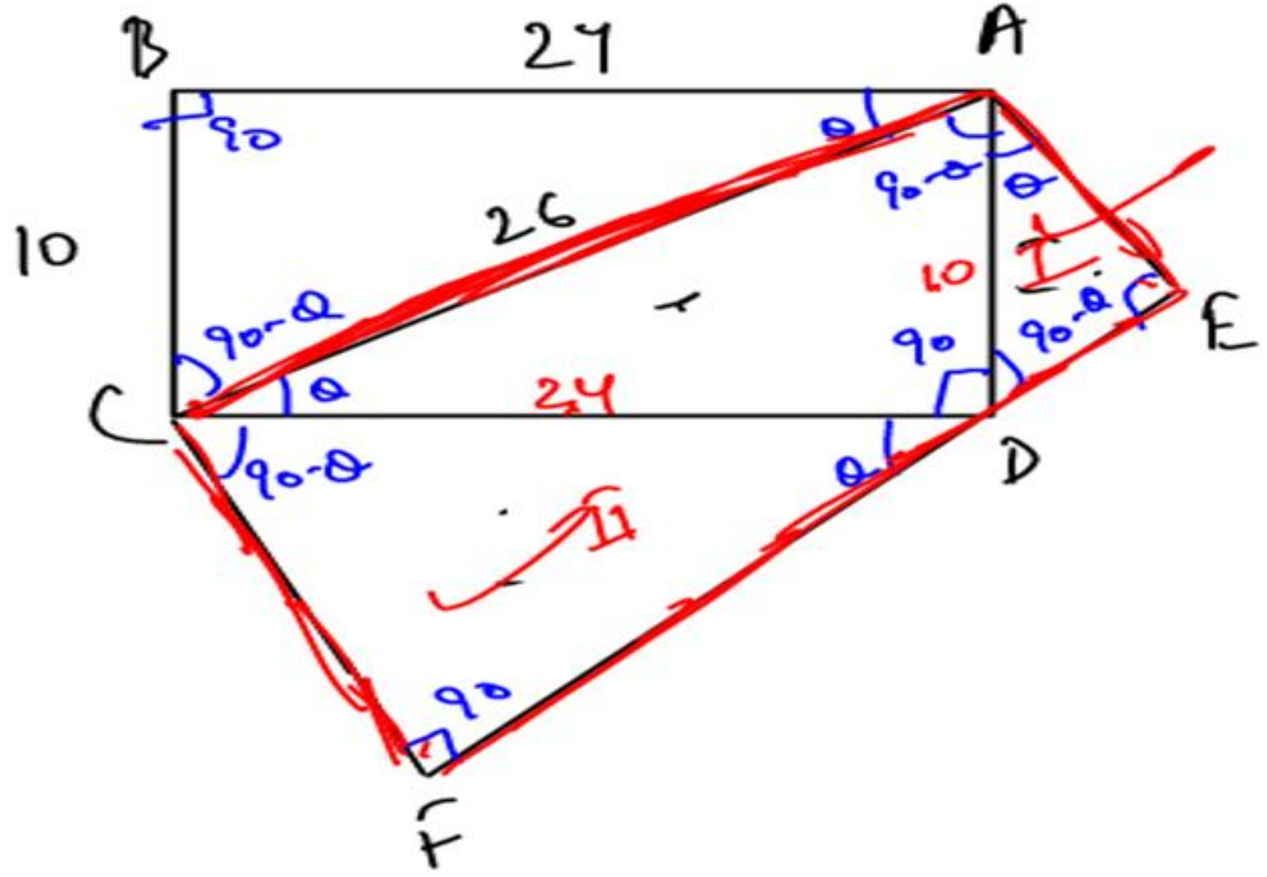
area of ΔABC = 120 cm^2

$\Delta ABC \sim \Delta AED$

$$\frac{120}{\text{area of } \Delta AED} = \left(\frac{26}{10}\right)^2$$

$$\text{area of } \Delta AED = 120 \times \left(\frac{5}{13}\right)^2$$

$$= \frac{3000}{169} \text{ sq.}$$



I & II are similar Triangles

$$\frac{\text{area of } \Delta ADC}{\text{area } AEFC} = \frac{1}{2}$$

I + II = 120

5 : 12

$\frac{25}{169} \times 120 = \frac{3000}{169}$

25 : 144

gradeup

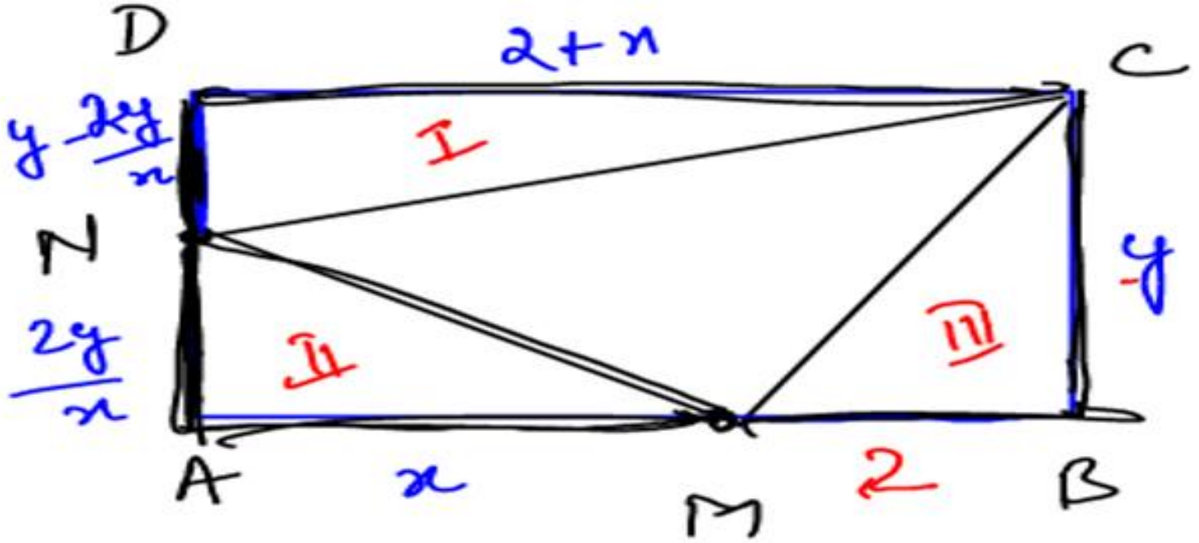
Q32. ABCD is a rectangle, there are two points M and N on side AB and AD such that area of triangles MAN, CDN and MBC are equal. If the length of BM is 2 cm, find the length of AM.

(a) $2+\sqrt{5}$ cm

(b) $1+\sqrt{5}$ cm

(c) $1+2\sqrt{5}$ cm

(d) $3+\sqrt{5}$ cm



$2y = x \cdot AN$

$AN = \frac{2y}{x}$

$(2+x)\left(y - \frac{2y}{x}\right) = 2y$

$(2+x)\left(1 - \frac{2}{x}\right) = 2$

$2 - \frac{4}{x} + x - 2 = 2$

$x^2 - 2x - 4 = 0$

$x = \frac{2 \pm \sqrt{20}}{2} = 1+\sqrt{5}$

gradeup

Ans. (b)

gradeup

Q33. If l, b and p be the length, breadth and perimeter of a rectangle and b, l and p are in GP (in order) then $\frac{l}{b}$

(a) 2 : 1

(b) $(\sqrt{3}-1)$: 1

(c) $(\sqrt{3}-1)$: 1

(d) 2 : $\sqrt{3}$

b, l, p in GP

$$\frac{l}{b} = \frac{p}{l}$$

$$\frac{l}{b} = \frac{2(l+b)}{l}$$

$$l^2 = 2lb + 2b^2$$

$$l^2 - 2lb - 2b^2 = 0$$

$$\frac{l^2}{b^2} - \frac{2l}{b} - 2 = 0$$

$$x^2 - 2x - 2 = 0$$

$$x = \frac{2 \pm \sqrt{12}}{2} = 1 + \sqrt{3}$$

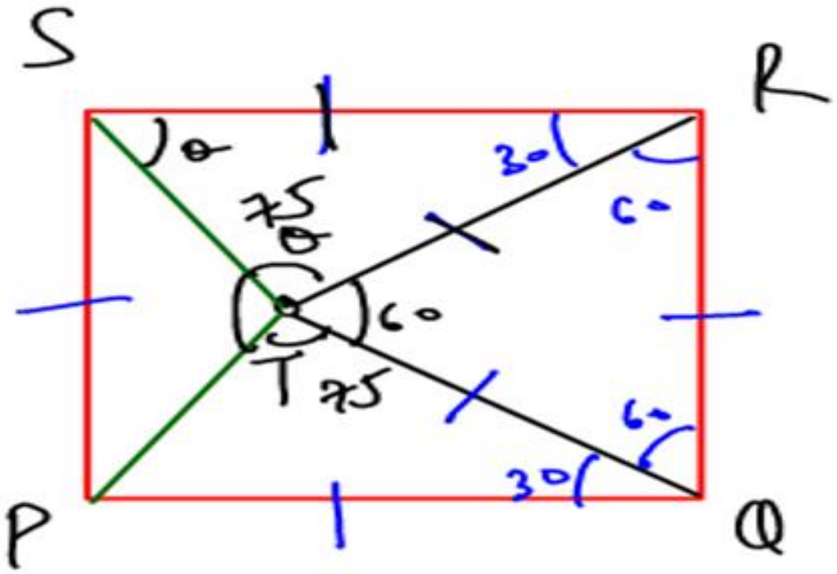
gradeup

Ans. (c)

gradeup

Q34. In a square PQRS, an equilateral triangle ΔTQR is formed, then m $\angle PTS$-

(A) 75° (B) 90° (C) 120° (D) 150°



$30 + 2\theta = 180$

$\theta = 75$

$75 + 75 + 60 + \angle PTS = 360$

$\angle PTS = 150$

gradeup

Ans. (d)

gradeup

Q35. Inside a square ABCD, ΔBEC is an equilateral triangle. If CE and BD intersect at O, then $\angle BOC$ is equal to :

(a) $60°$ (b) $75°$ (c) $90°$ (d) $120°$

gradeup

Ans. (b)

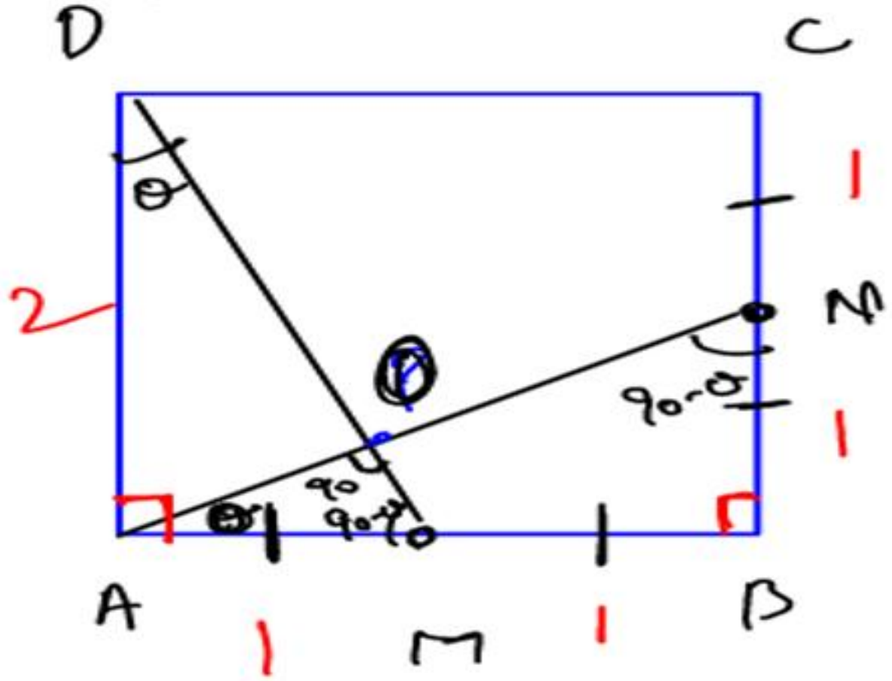
gradeup

Q36. ABCD is a square, M is mid-point of AB and N is mid-point of BC. Join DM and AN which meet at O. Therefore, which is true in the following ?

(a) OA : OM = 1 : 2 (b) AN = MD

(c) ∠ADM = ∠ANB (d) ∠AMD = ∠BAN

PYQ of SSC



AN = √5 MD = √5

△ABM ≅ △DAM

△ABN ≅ △DAM

(i) ∠AOM = 90°

gradeup

Ans. (b)

gradeup

Q37. Let X by any point within a square ABCD. On AX a square AXYZ is described such that D is within it. Which one of the following is correct?

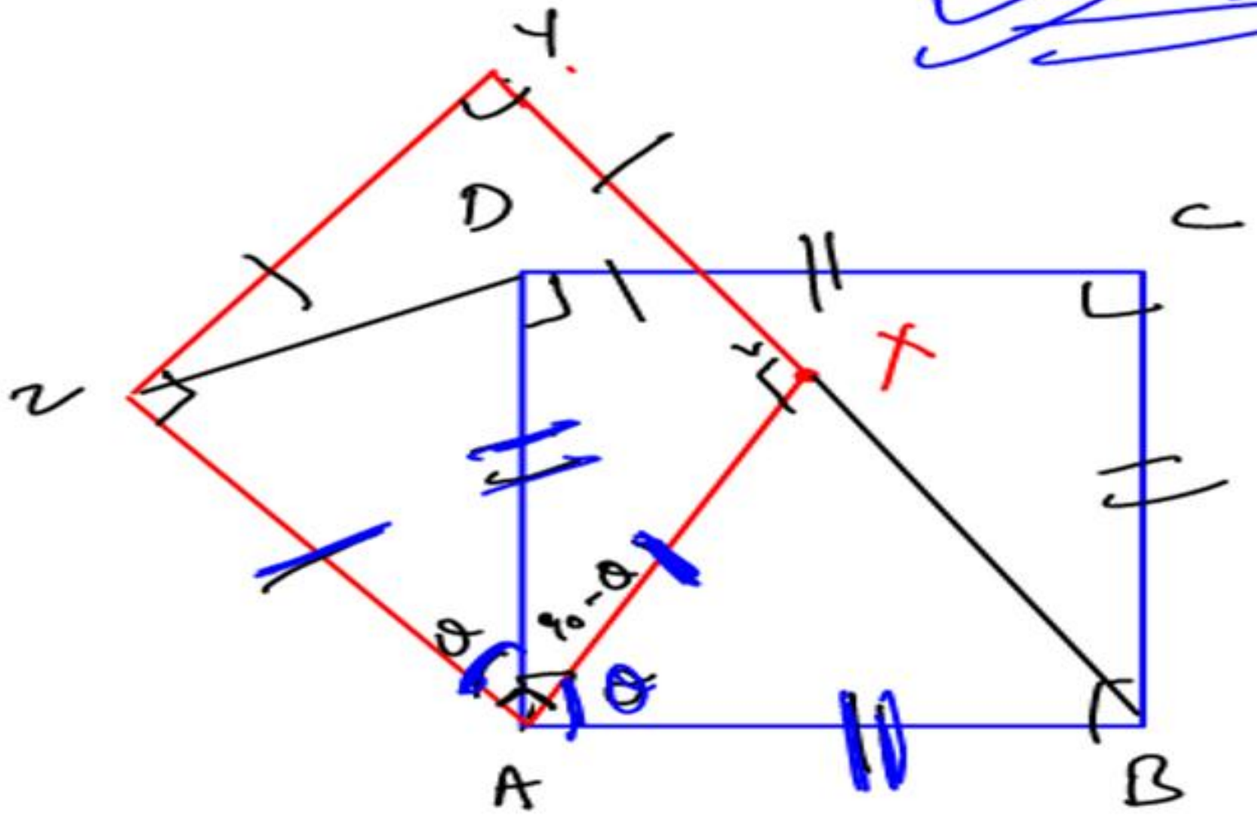
V. Imp

(a) AX = DZ

(b) ∠ADZ = ∠BAX

(c) AD = DZ

(d) BX = DZ



$\Delta XAB \cong \Delta ZAD$

$XA = ZA$

$XB = ZD$

gradeup

Ans. (d)

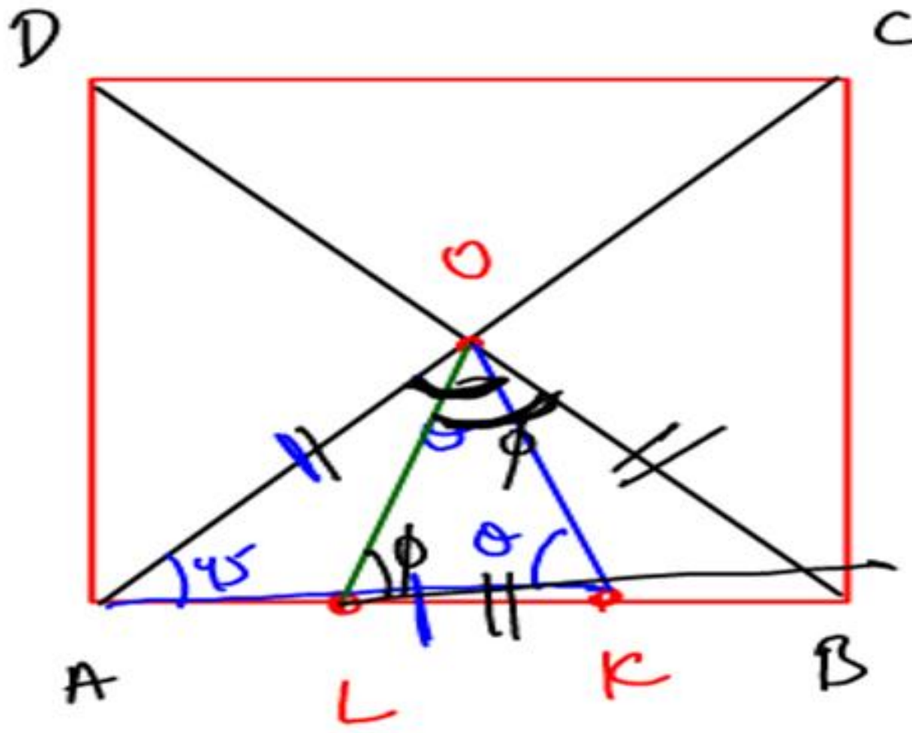
gradeup

Q38. ABCD is a square. The diagonals AC and BD meet at O let K, L be the points on AB such that AO = AK and BO = BL. If $\theta = \angle LOK$, then what is the value of $\tan\theta$?

(a) $\frac{1}{\sqrt{3}}$ (b) $\sqrt{3}$ (c) 1 (d) $\frac{1}{2}$

V. Imp

PYQ



$\triangle AOK$

$45 + 2\theta = 180$

$\theta = 67.5$

$\phi = 67.5$

θ or $\phi = 135$

$\angle LOK = 45^\circ$

gradeup

Ans. (c)

gradeup

Q39. A square and a rhombus have the same base and the rhombus is inclined at 60°. What is the ratio of the area of the square to the area of the rhombus:

(a) 1 : 1 (b) $\sqrt{2}$: 1 (c) 2 : 1 (d) 2 : $\sqrt{3}$

gradeup

Ans. (d)

gradeup

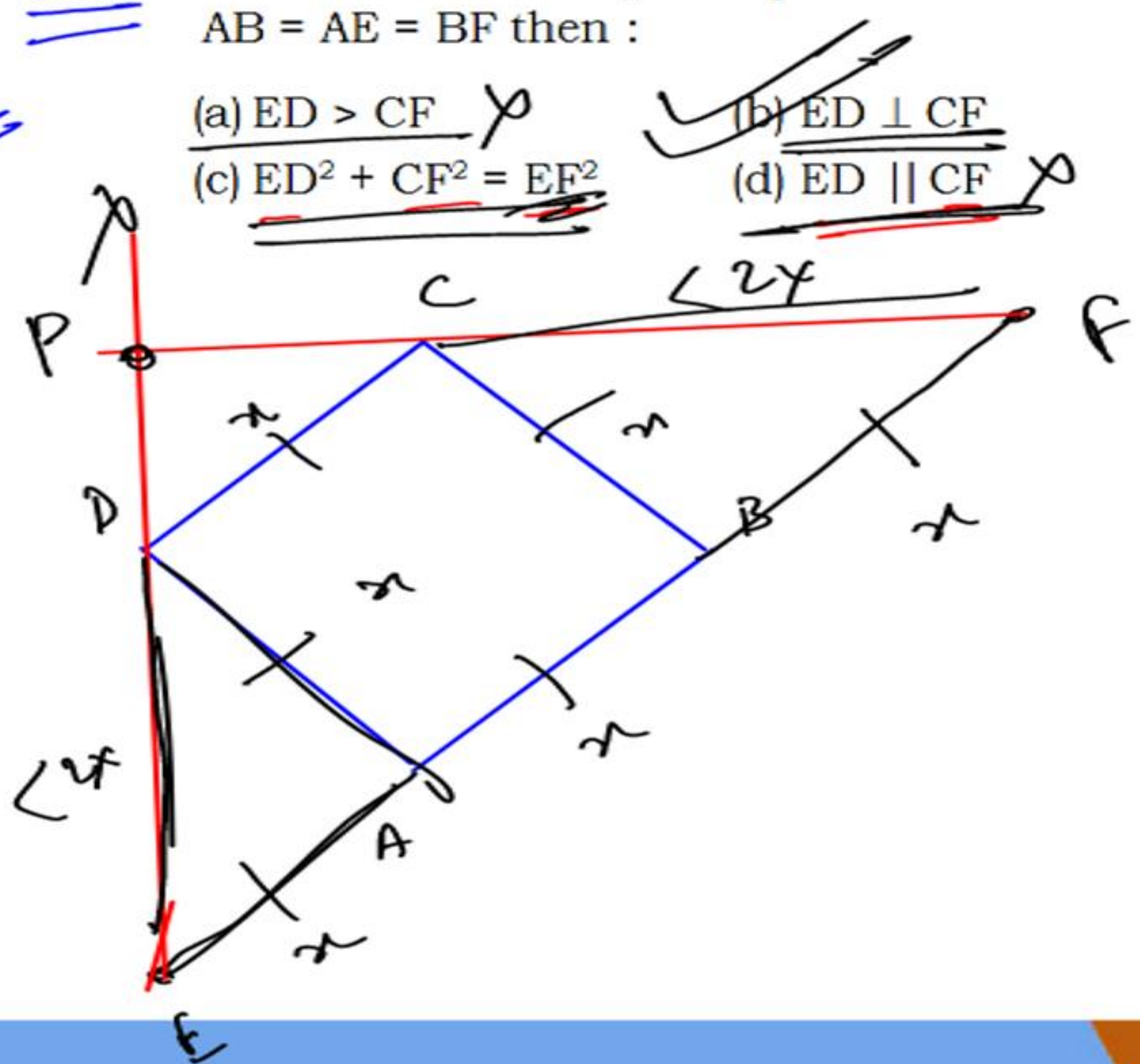
Q40. ABCD is a rhombus, AB is produced to F and BA is produced to E such that AB = AE = BF then :

(a) ED > CF

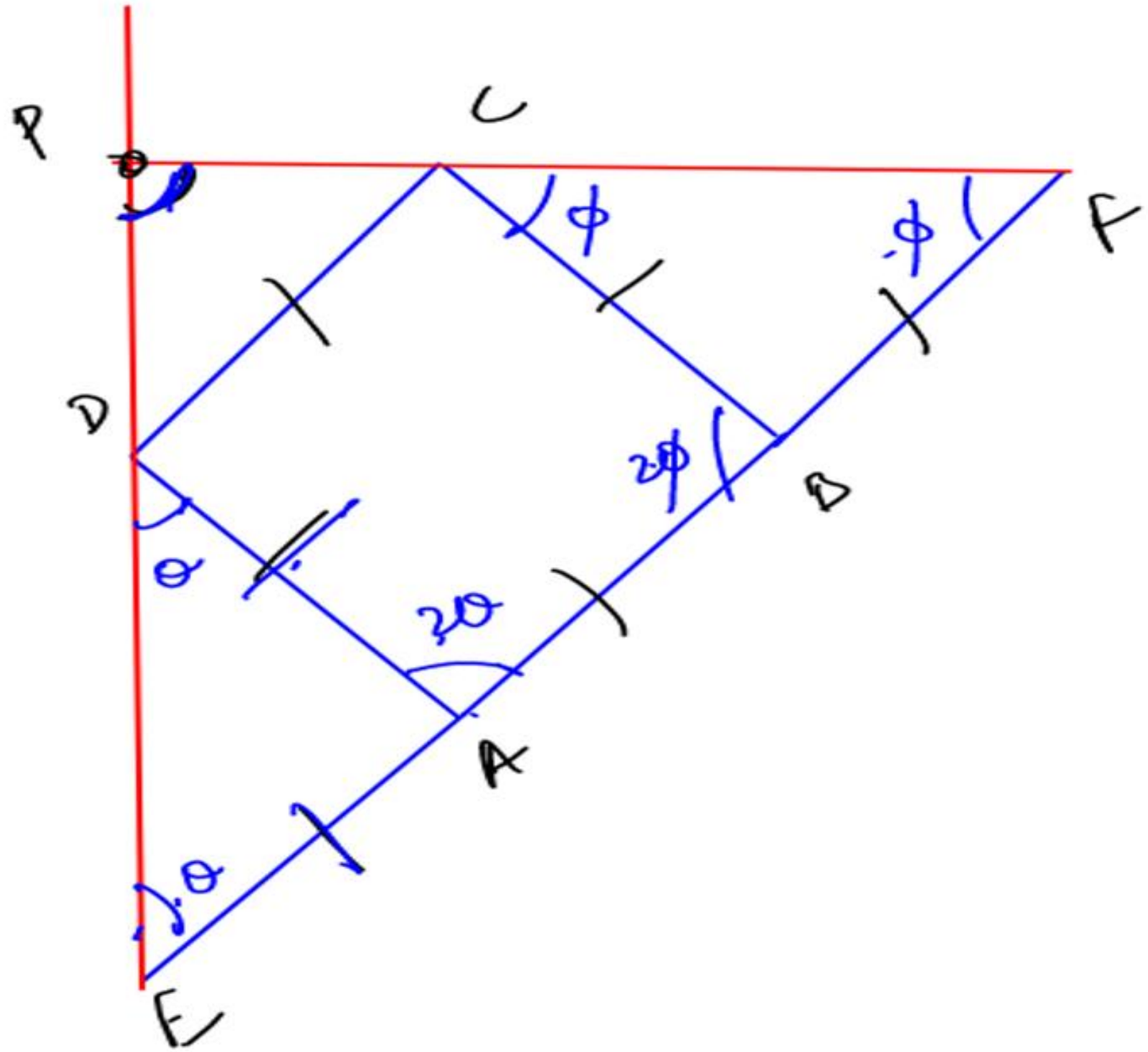
(b) ED ⊥ CF

(c) $ED^2 + CF^2 = EF^2$

(d) ED || CF



$(2x)^2 + (2x)^2 = 8x^2$



$2\theta + 2\phi = 180$

$\theta + \phi = 90$

$\angle EPF = 90^\circ$

gradeup

Ans. (b)

gradeup

Q41. ABCD is a rhombus. A straight line through C cuts AD produced at P and AB produced at Q. If $DP = \frac{1}{2}$ AB, then the ratio of the length of BQ and AB is :

(a) 1 : 1
(b) 2 : 1
(c) 1 : 2
(d) None of the above

gradeup

Ans. (b)

gradeup

Q42. ABCD is a trapezium in which AB = CD, AD || BC, AD = 5 cm and BC = 9 cm. Therefore, If area of ABCD is 35 cm^2, then find the length of CD?

(A) $\sqrt{29}$ cm (B) 5 cm (C) 6 cm (D) $\sqrt{21}$ cm

gradeup

Ans. (a)

gradeup

Q43. If ABCD is trapezium in which AB || DC, AC and BD cut each other at E, then-

(A) $DE \cdot EA = EC \cdot BC$
(B) $DE \cdot EA = EC \cdot AB$
(C) $DE \cdot EA = EC \cdot DC$
(D) $DE \cdot EA = EB \cdot EC$

gradeup

Ans. (d)

gradeup

Q44. Find the area of a trapezium ABCD in which AB || DC, AB = 26cm, BC = 25 cm, CD = 40 cm and DA = 25 cm.

(a) 648 cm^2
(b) 792 cm^2
(c) 660 cm^2
(d) 798 cm^2

gradeup

Ans. (b)

gradeup

Q45. ABCD is a trapezium with parallel sides AB = 2 cm, and DC 3 cm E and F are the mid-points of the non-parallel sides. The ratio of area of ABFE of area of EFCD is :

(a) 9 : 10
(b) 8 : 9
(c) 9 : 11
(d) 11 : 9

gradeup

Ans. (c)

gradeup

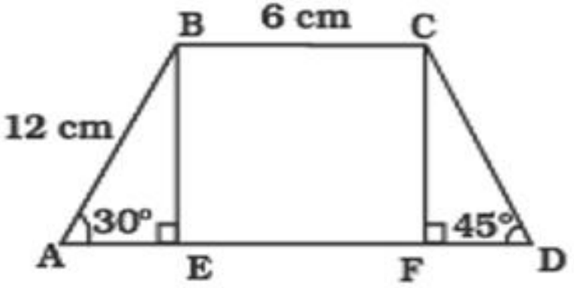
Q46. In trapezium ABCD, AB || DC and DC = 2 AB. EF drawn parallel to AB cuts AD at F and BC at E such that $\frac{BE}{EC} = \frac{3}{1}$ Diagonal DB intersect EF at G. Find $\frac{AB}{FE}$

(a) $\frac{10}{7}$ (b) $\frac{1}{7}$ (c) $\frac{3}{7}$ (d) $\frac{7}{10}$

gradeup

Ans. (a)

Q47. In a trapezium ABCD, $\angle BAE = 30^\circ$, $\angle CDF = 45^\circ$, BC = 6 cm and AB = 12 cm. Find the area of ABCD.



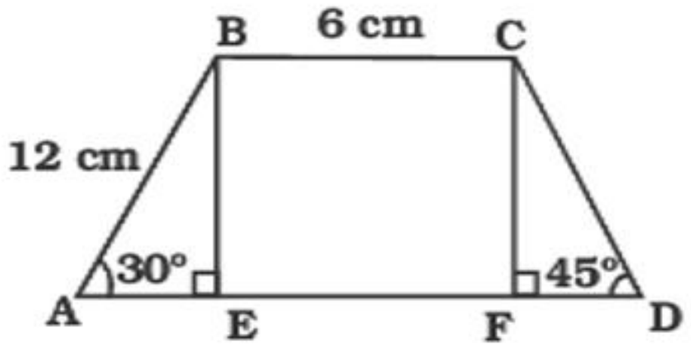
(a) $18(3+\sqrt{3})$ cm²

(b) $36\sqrt{3}$ cm²

(c) $12(3+2\sqrt{3})$ cm²

(d) None of these

Ans. (a)



gradeup

Q48. ABCD is a parallelogram. If the bisectors of the $\angle A$ and $\angle C$ meet the diagonal BD at points P and Q respectively, then which one of the following is correct?

(a) PCQA is a straight line

(b) ΔAPQ is similar to ΔCQP

(c) AP = CP

(d) AP = AQ

gradeup

Ans. (b)

gradeup

Q49. ABCD is a parallelogram, E and F are the points on the diagonal AC such that AE = FC, then quadrilateral BEDF is a :

(a) Trapezium
(b) Parallelogram
(c) Square
(d) None of these

gradeup

Ans. (b)

gradeup

Q50. ABCD is a parallelogram and Q and R are circumcentre of ΔABC and ΔADC, then AQCR will be-

(A) Rectangle
(B) Rhombus
(C) Trapezium
(D) Square

gradeup

Ans. (b)