MATHS

BOOKS - MTG IIT JEE FOUNDATION

PRACTICAL GEOMETRY

Illustrations

1. Construct as quadrilateral ABCD in which AB=4.8cm, BC=4.3cm, CD=3.6cm, AD=4.2cm and diagonal AC=6cm.

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2. Construct a quadrilateral ABCD, give that AB=5cm, BC=7cm, AD=4cm, diagonal AC=9 cm and diagonal BD=6cm.

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3. Construct a quadrilateral PQRS in which PQ=4.5cm, $\angle PQR = 120^\circ, QR = 3.\ cm, \angle QRS = 100^\circ$ and $\angle QPS = 60^\circ$.

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4. Construct a quadrilateral ABCD in which AB=4cm, BC=6cm, CD=6cm, $\angle B = 120^\circ$ and $\angle C = 90^\circ$.

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5. Two adjacent sides of a parallelogram are 4 cm and 6 cm respectively. The angle between them is 60°. Construct the parallelogram.

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6. Construct a parallelogram one of whose sides is 5.2 cm and whose diagonals are 6 cm and 6.4 cm.

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7. Construct a trapezium ABCD in which $AB \| CD, AB = 8.2cm, BC = 3.4cm, CD = 3.4cm$ and $\angle B = 75^\circ$.

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8. Construct a parallelogram whose diagonals are 5.4 cm and 6.2 cm and an angle between them is 70°.

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9. Construct a rectangle PQRS given that PQ=5 cm and the diagonal PR=6.5 cm.

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10. Construct a square whose one diagonal AC=6.8cm.

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11. Construct a rhombus with side 4.2 cm and one of its angles equal to 65°.

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Solved Examples

1. Construct a quadrilateral when AB=5.5cm, BC=4.4.cm, AD=3.3cm, CD=4.6cm and BD=6.6cm.

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2. Construct a quadrilateral PQRS in which PQ=6cm, QR=7.5cm , PR=10.5cm, PS=4.5cm and QS=9cm.

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3. Construct a quadrilateral ABCD in which AB=3.6cm, $\angle ABC = 80^\circ$, $BC = 4cm$, $\angle BAD = 120^\circ$ and $AD = 5cm$.

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4. Construct a quadrilateral ABCD in which AB=4cm, BC=6cm, $\angle A = 60^\circ$, $\angle B = 120^\circ$ and $\angle C = 105^\circ$

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5. Construct a quadrilateral ABCD in which AB=2.9cm,BC=3.7cm, CD=4.2cm, AD=6.1 and $\angle B = 90^\circ$.

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6. Construct a parallelogram ABCD where AB=4.2cm, AD=3.5 cm and $\angle A = 75^\circ$

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7. Construct rhombus ABCD whose side is 4.8 cm and an angle is 75°.

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8. Construct a trapezium PQRs in which $PQ \| SR, PQ = 6.5cm, QR = 4.5cm, PS = 6cm$ and $\angle Q = 60^\circ$.

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9. Construct a parallelogram ABCD in which diagonal AC=3.8 cm, diagonal BD=4.6cm and the angle between AC and BD is 60°.

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10. Construct a kite ABCD in which AB=4cm, AD=6cm and AC=6cm.

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11. Construct a quadrilateral ABCD, give that AB=5cm, BC=4cm, $\angle B = 70^\circ$, $\angle A = 90^\circ$ and $\angle C = 150^\circ$

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12. Construct a rhombus ABCD , given that side AB=6 cm and one diagonal is 7 cm.

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Ncert Section Exercise 4 1

1. Construct the following quadrilaterals Quadrilateral $ABCD$

$AB = 4.5cm, BC = 5.5cm, CD = 4cm, AD = 6cm, AC = 7cm$

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2. Construct the following quadrilaterals.

Quadrilateral

JUMP

JU=3.5cm

UM=4cm

MP=5cm

PJ=4.5cm

PU=6.5cm

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3. Construct the following quadrilaterals.

Parallelogram

MORE

OR=6cm

RE=4.5cm

EO=7.5cm

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4. Construct the following quadrilaterals.

Rhombus

BEST

BE=4.5cm

ET=6cm

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Ncert Section Exercise 4 2

1. Construct the following quadrilaterals.

Quadrilateral

LIFT

LI=4cm

IF=3cm

TL=2.5cm

LF=4.5cm

IT=4cm

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2. Construct the following quadrilaterals.

Quadrilateral

GOLD

OL=7.5cm

GL=6cm

GD=6cm

LD=5cm

OD=10cm

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3. Construct the following quadrilaterals.

Rhombus BEND

BN=5.6cm,DE=6.5cm

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Ncert Section Exercise 4 3

1. Construct the following quadrilaterals.

Quadrilateral

MORE

MO=6cm

OR=4.5cm

$\angle M = 60^\circ$

$\angle O = 105^\circ$

$\angle R = 105^\circ$

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2. Construct the following quadrilaterals.

Quadrilateral

PLAN

PL=4cm

LA=6.5cm

$\angle P = 90^\circ$

$\angle A = 110^\circ$

$\angle N = 85^\circ$

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3. Construct the following quadrilaterals.

Parallelogram

HEAR

HE=5cm

EA=6cm

$\angle R = 85^\circ$

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4. Construct the following quadrilaterals. Rectangle OKAY with

OK=7cm and KA=5cm

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Ncert Section Exercise 4 4

1. Construct the following quadrilaterals.

Quadrilateral

DEAR

DE=4cm

EA=5cm

AR=4.5cm

$\angle E = 60^\circ$

$\angle A = 90^\circ$

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2. Construct the following quadrilaterals.

Quadrilateral

TRUE

TR=3.5cm

RU=3cm

UE=4cm

$\angle R = 75^\circ$

$\angle U = 120^\circ$

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Ncert Section Exercise 4 5

1. Draw the following

The square READ with RE=5.1cm.

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2. Draw the following

A rhombus whose diagonals are 5.2 cm and 6.4 cm long.

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3. Draw the following

A rectangle with adjacent sides of lengths 5 cm and 4 cm.

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4. Draw the following

A parallelogram OKAY where OK=5.5 cm and KA=4.2cm.

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Exercise Multiple Choice Questions Level 1

1. choose the correct option : A quadrilateral has

A. 4 sides, 4 angles and 2 diagonals

B. 3 sides, 2 angles and 1 diagonal

C. 2 sides, 2 angles and 2 diagonals

D. 5 sides, 5 angles and 3 diagonals

Answer:

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2. A quadrilateral can be drawn if at least_____parts are given.

A. 3

B. 4

C. 5

D. 6

Answer:

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3. Which of the following is sufficient for constructing a quadrilateral?

A. 5 sides and 3 diagonals

B. 3 sides only

C. 3 angles and their 2 included sides

D. 2 diagonals only

Answer:

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4. Given AB=3cm, BC=5cm, AC=9cm, AD=6cm, CD=2cm. Which of the following is true about the construction of a quadrilateral?

A. It is possibel to draw the quadrilateral.

B. It is not possible to draw the quadrialteral, since $AD + DC < AC.$

C. It is possibel to draw the quadrilateral, since $AD + DC < AC$

D. None of these

Answer:

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5. If it is given that AB=5cm, BC=4cm, $\angle B = 60^\circ$ and opposite sides are equal is given, then which of the following figure can be constructed?

A. Rectangle

B. Rhombus

C. Parallelogram

D. Square

Answer:

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6. If AB=11cm,BC=8.85cm,$\angle B = 90^\circ$ and opposite sides are equal, then which of the following figure can be constructed?

A. square

B. Rectangle

C. Trapezium

D. Rhombus

Answer:

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7. choose the correct option : If ABCD is a parallelogram then $\angle B - \angle D$ is

A. 0°

B. 90°

C. 180°

D. 360°

Answer:

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8. If PQRS is a parallelogram, then which of the followign is a false statement?

A. Opposite sides are equal

B. Opposite angles are equal

C. Diagonals bisects each other

D. Diagonals bisects each other at right angles.

Answer:

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9. A quadrilateral with each angle 90° and having equal diagonals is a

A. Parallelogram

B. Rhombus

C. Rectangle

D. None of these

Answer:

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10. A quadrilateral, in which both pairs of opposite sides are parallel and equal is called a

A. Kite

B. Parallelogram

C. Trapezium

D. None of these

Answer:

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11. A parallelogram in which all the sides are equal and each angle is equal to a right angle, is called a

A. Rhombus

B. Trapezium

C. Rectangle

D. Square

Answer:

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12. A quadrilateral whose only one pair of opposite sides are parallel, is called a

A. Square

B. Trapezium

C. Rhombus

D. Parallelogram

Answer:

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13. The sum of adjacent angles of a parallelogram is

A. 360°

B. 90°

C. 180°

D. 0°

Answer:

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14. Quadrilaterals

A. 10

B. 4

C. 8

D. 2

Answer:

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15. Which of the following is sufficient to construct a rhombus?

A. All the four sides

B. Opposite angles are equal

C. Length of both diagonals

D. Length of one diagonal

Answer:

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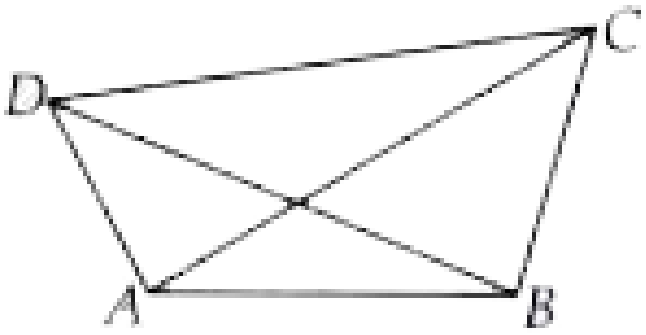
16. The given figure of quadrilateral can be drawn if



A. Sides AB,BC,AC are given

B. Sides AB,BC,CD,DA and diagonal AC are given

C. Diagonal AC,BD and any two sides are given.

D. All of these

Answer:

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17. The minimum number of measurements needed to construct a square is

A. 1

B. 2

C. 3

D. 4

Answer:

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18. To construct a unique parallelogram, the minimum number of measurements required is

A. 2

B. 3

C. 4

D. 1

Answer:

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Exercise Multiple Choice Questions Level 2

1. In quadrilateral ABCD if AB=7.3 cm, one angles is 60° and diagonals bisect each other at 90° then which of the following figures can be constructed?

A. Rectangle

B. Square

C. Trapezium

D. Rhombus

Answer:

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2. In a quadrilateral ABCD if $AB \mid\mid DC, AB = 7cm, BC = 6cm, AD = 6.5cm$ and $\angle B = 70^\circ$, then which figure can be constructed?

A. Square

B. Trapezium

C. Rhombus

D. Rectangle

Answer:

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3. The diagonals of a parallelogram ABCD intersect at O. If $\angle DBC = 30^\circ$ and $\angle BDC = 60^\circ$, then $\angle DAB$ is

A. 90°

B. 75°

C. 60°

D. 120°

Answer:

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4. To construct a quadrilateral ABCD, which of the following parts is sufficient?

A. Length of AB

B. Length of BC

C. Measure of $\angle A$, $\angle B$ and $\angle C$

D. All of these

Answer:

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5. Parallelograms, in which diagonals are not equal and bisect each other at right angles are

A. Rectangle

B. Square

C. Rhombus

D. Trapezium

Answer:

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6. A parallelogram in which both the diagonals are equal and bisect each other is a

A. Rhombus

B. Rectangle

C. Square

D. None of these

Answer:

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7. In a rhombus, the sum of adjacent angles is

A. 90°

B. 180°

C. 270°

D. 360°

Answer:

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8. Which of the following statements is correct?

A. A unique quadrilatral can be construced if its two sides and a diagonal is given.

B. A unique quadrilateral can be constructed if its two adjacent sides and two angles are given.

C. A unique quadrilateral can be constructed if its three sides and two included angles are given.

D. None of these

Answer:

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Exercise Multiple Choice Questions Level 2 Comprehension Type

1. Passage I: Given condition are : AB=6cm, BC=7cm, CD=3cm, AD=5.5cm and AC=11cm.

Is it possible to construct a quadrilateral?

A. No, since in ΔACD, $AD + CD < AC$

B. yes

C. Data is insufficient

D. None of these

Answer:

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2. Given a quadrilateral ABCD in which BC=5cm, $\angle BCD = 120^\circ$, $CD = 4.8cm$ and opposite sides are parallel

and equal.

What is the name of the quadrilateral which can be drawn from the given data?

A. Square

B. Rhombus

C. Parallelogram

D. Rectangle

Answer:

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3. Given a quadrilateral ABCD in which BC=5cm, $\angle BCD = 120^\circ, CD = 4.8cm$ and opposite sides are parallel

and equal.

If $\angle BCD = 120^\circ$, then $\angle BAD =$

A. 60°

B. 120°

C. 180°

D. None of these

Answer:

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4. Given a quadrilateral ABCD in which BC=5cm, $\angle BCD = 120^\circ$, $CD = 4.8cm$ and opposite sides are parallel and equal.

If BC=5cm, Then AD=

A. 5cm

B. 4.8cm

C. 6cm

D. None of these

Answer:

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Exercise Subjective Problems Level 2

1. Construct a square each of whose side length is 5 cm.

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2. Construct a rectangle ABCD whose sides AB=5.4 cm and BC=4.5cm.

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3. Construct a rhombus with the sides 4.5 cm and one of its angle is 60°.

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4. Find the sides of the square LMNO whose diagonal measures 6 cm.

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5. Construct a rectangle ABCD in which side BC=5 cm and diagonal BD=6.2cm.

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6. Construct a quadrilateral PQRS with PQ=3cm, QR=3.8 cm, RS=4.1 cm, PS=3.4 cm and diagonal PR=5 cm.

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7. Construct a parallelogram ABCD with AB=5cm, BC=4.5cm, and AC=7cm.

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8. Construct a rectangle PQRS, in which PQ=5.5 cm and diagonal PR=6.4cm.

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9. Construct a square ABCD, in which each diagonal is to 6 cm length.

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10. Construct a rhombus ABCD given that side AB=5 cm and a diagonal is 6 cm.

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11. Construct a parallelogram PQRS such that PQ=5cm, PR=7cm and QS=8cm.

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12. Construct a quadrilateral ABCD in which AB=3.8cm, BC=5cm,CD=5cm, DA=5.5cm and AC=8cm.

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13. Construct a quadrilateral ABCD in which AB=4cm, BC=3.4cm, AD=2.8cm, diagonal AC=4.6cm and diagonal BD=4.2cm.

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14. Construct a quadrilateral PQRS in which PQ=3.5cm,QR=5cm, Rs=4.5cm, $\angle Q = 120^\circ$ and $\angle R = 70^\circ$.

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15. Construct a quadrilateral LMNO in which LM=5.6cm, MN=4cm $\angle L = 50^\circ$, $\angle M = 105^\circ$ and $\angle O = 80^\circ$

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16. Construct a quadrilateral ABCD in which AB=5cm, Ac=6cm, AD=8cm and $\angle ABC = \angle ACD = 90^\circ$.

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17. Construct a quadrilateral ABCD given that AB=5cm, BC=4cm, CD=4.5cm, DA=3cm and diagonal AC=4cm.

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18. Construct a quadrilateral ABCD give that AB=4 cm, BC=3cm, AD=3.5cm, diagonal AC=5 cm and diagonal BD=6cm.

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19. Construct a quadrilateral ABCD given that AB=3.5 cm, BC=4cm, CD=4.5cm, DA=5cm and $\angle B = 60^\circ$.

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20. Construct a quadrilateral ABCD given that $AB = 5cm, BC = 4.5cm, CD = 4cm, \angle B = 60^\circ$ and $\angle C = 135^\circ$.

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21. Construct a trapezium ABCD in which AB=7cm, BC=4cm, CD=3.2cm, $\angle B = 75^\circ$ and $DC \mid\mid AB$.

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22. Construct a parallelogram ABCD in which BC=6cm, AB=3.5cm and $\angle ABC = 70^\circ$.

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23. Construct a rhombus whose diagonals are 6 cm and 8 cm and also find its side.

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24. In a kite ABCD if AB=4cm and BC=4.9cm, then length of CD and DA are

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25. To construct a quadrilateral least number of independent elements required is

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26. A quadrilateral has four sides, foru angles and .....diagonals.

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27. To construct a quadrilateral if 2 diagonals are give,n, then how many sides are required?

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28. To construct a quadrilateral, if 3 angles are given then how many included sides are required?

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29. In a quadrilateral, if 4 sides are given then the number of diagonal (s) required is/are

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30. To construct a quadrilateral if 3 sides are given, then how many included angles are required?

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31. In a parallelogram PQRS if QR=13cm, RS=14cm, PS=13cm. Then the parallelogram can be constructed if PQ=....cm.

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32. To construct a quadrilateral if 4 sides are given, then how many included angles is/are required?

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33. If one side of a rhombus if 17 cm and length of one of its diagonals is 16 cm. What is the length of other diagonal (incm)?

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