



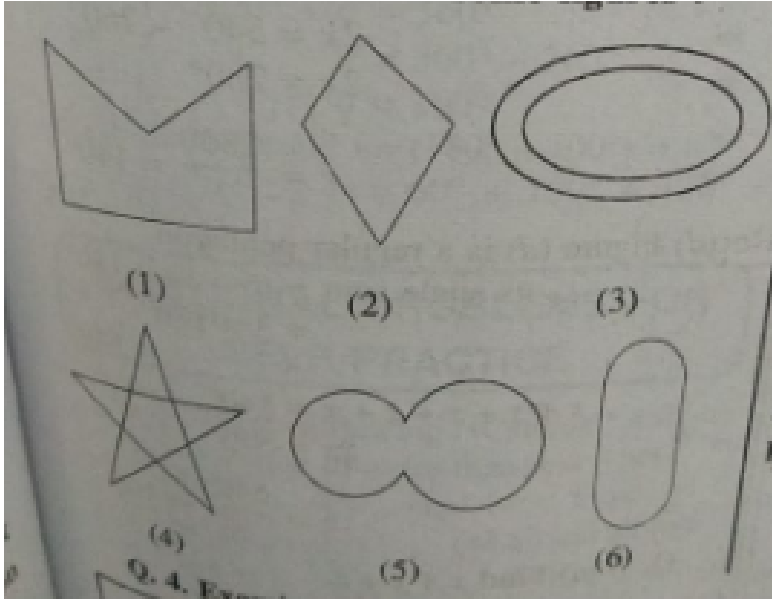
MATHS

BOOKS - MBD

UNDERSTANDING QUADRILATERALS

Example

1. Given here are some figures:



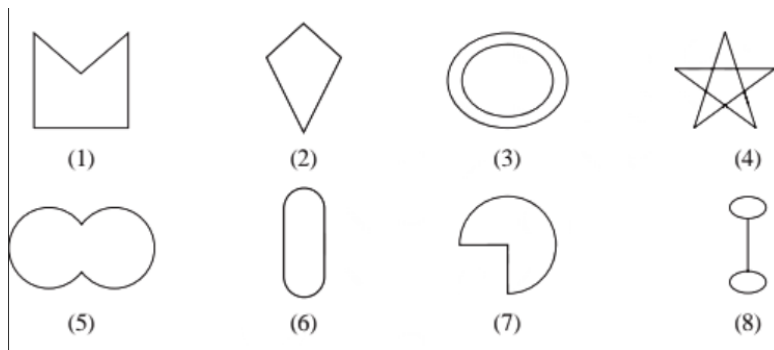
Classify each of them on the basis of the following :

Simple curve.



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2. Given here are some figures:



Classify each of them on the basis of the following :

Simple closed curve.



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3. Given here are some figures: Classify each of them on the basis of the following :

Polygon.



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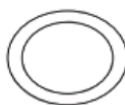
4. Given here are some figures:



(1)



(2)



(3)



(4)



(5)



(6)



(7)



(8)

Classify each of them on the basis of the

following :

Convex Polygon.



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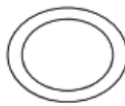
5. Given here are some figures:



(1)



(2)



(3)



(4)



(5)



(6)



(7)



(8)

Classify each of them on the basis of the

following :

Concave Polygon.



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6. How many diagonals does each of the following have? A convex quadrilateral



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7. How many diagonals does each of the following have? A regular hexagon



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8. What is the sum of the measures of the angles of a convex quadrilateral? Will this property hold if the quadrilateral is not convex? (Make a non-convex quadrilateral and try!)



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9. Examine the table :



What can you say about the angle sum of a

Convex Polygon with number of sides :

7,8,10 ,n.



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10. What is a regular polygon? State the name of a regular polygon of 3 sides



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11. What is a regular polygon? State the name of a regular polygon of 4 sides



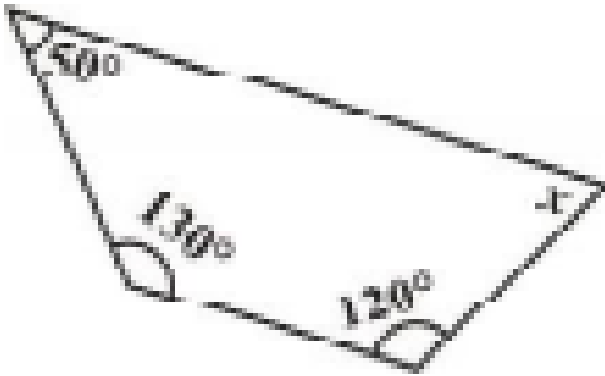
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12. What is a regular polygon? State the name of a regular polygon of 6 sides



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13. Find the angle measure x in the following figures.

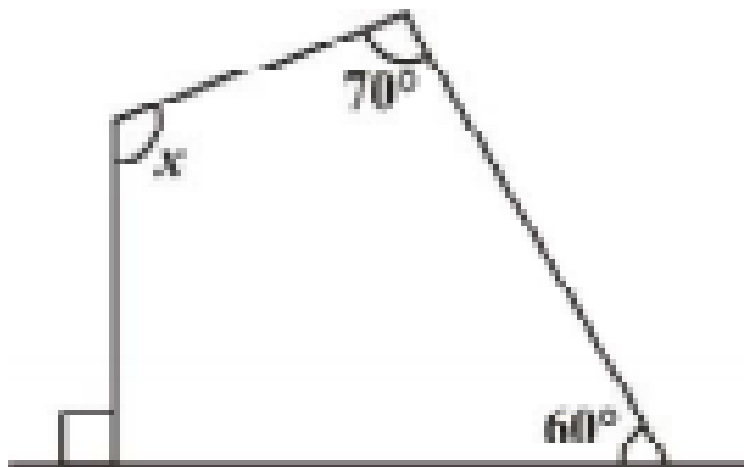


(a)



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14. Find the angle measure x in the following figures.

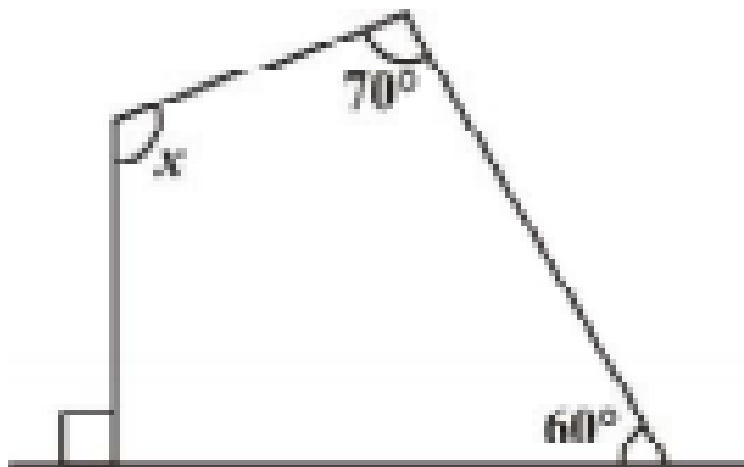


(b)



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15. Find the angle measure x in the following figures.

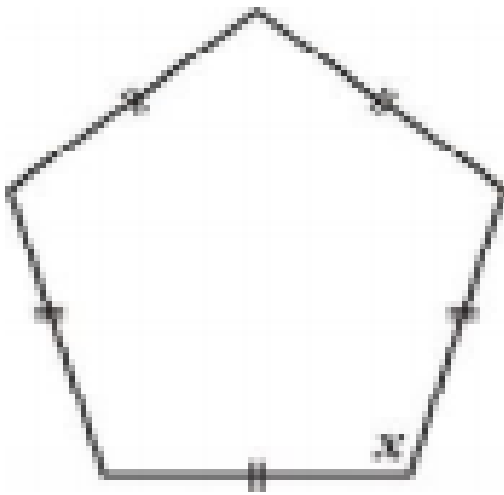


(b)



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16. Find the angle measure x in the following figures.

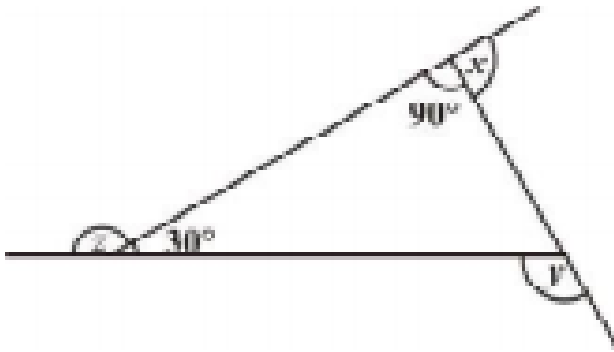


(d)



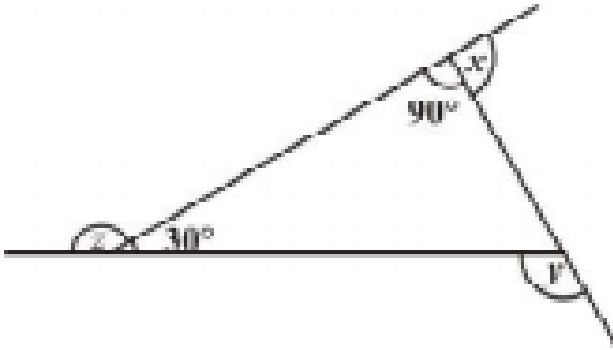
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17. Find $x+y+z$



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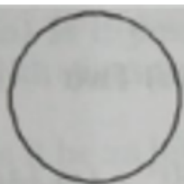
18. Find $x+y+z$



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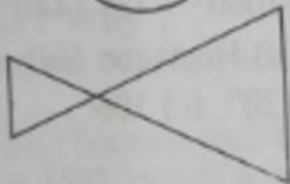
19. Match the following : (Caution ! A figure may match to more than one type).

4.



(d) A closed curve that is not simple.

5.



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20. How many diagonals does each of the following have ?

A concave quadrilateral.



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21. How many diagonals does each of the following have ?

A square



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22. How many diagonals does each of the following have ?

A rectangle.



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23. What is the sum of the angles of a rectangle ?



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24. What can you say about the angle sum of a convex polygon with number of sides ?

6.



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25. What can you say about the sum of angles of a convex polygon with number ?

8



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26. What can you say about the sum of angles of a convex polygon with number of sides

10



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27. What is a regular polygon? State the name of a regular polygon of 6 sides



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28. What is a regular polygen ?

State the name of a reular polygon of

7



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29. What is a regular polygen ?

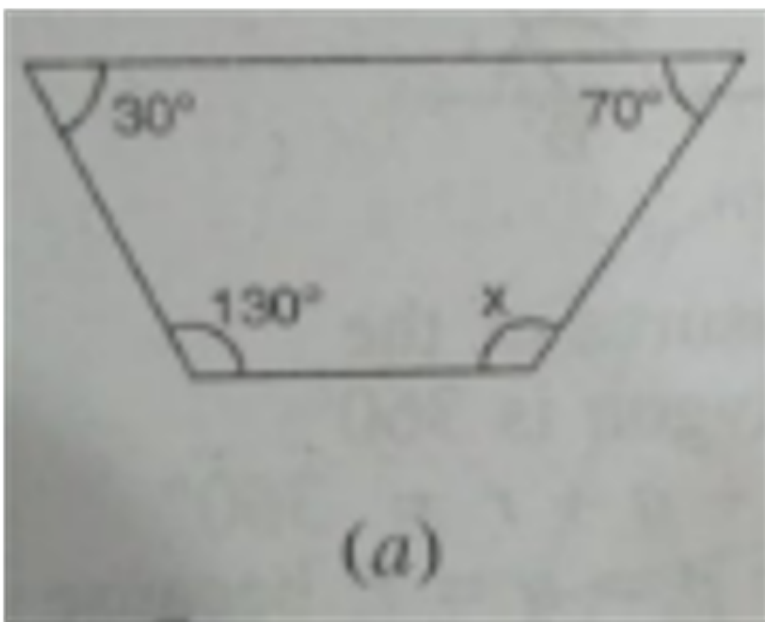
State the name of a reular polygon of

8



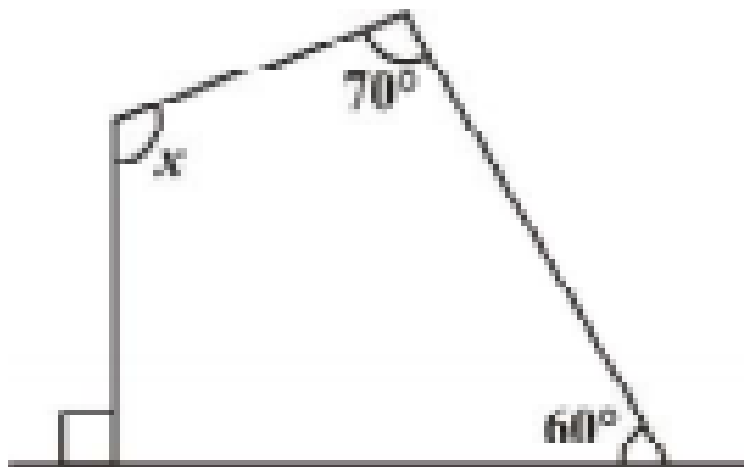
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30. Find the angle measure x in the following figures



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31. Find the angle measure x in the following figures.

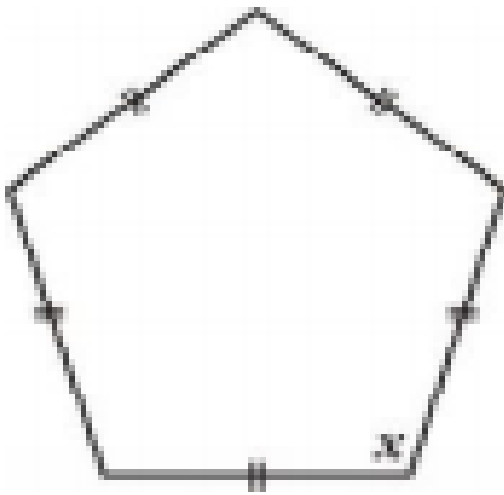


(b)



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32. Find the angle measure x in the following figures.

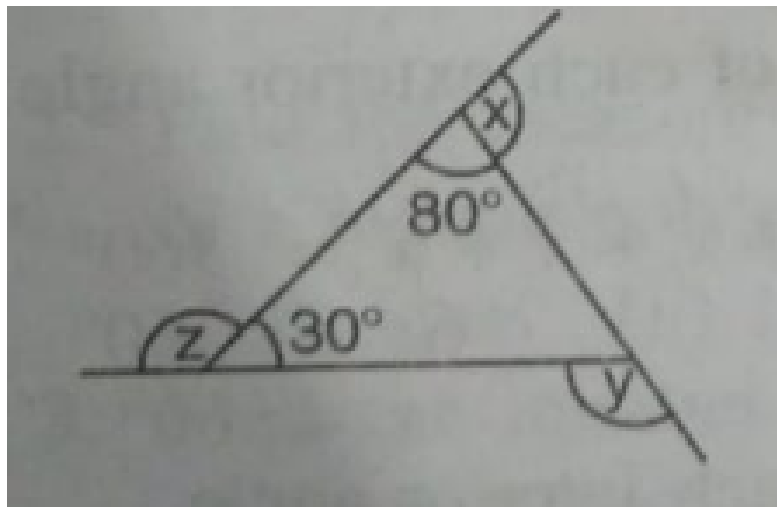


(d)



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33.



Find $x+y+z$.



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34.



Find $x+y+z+w$.



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35. Take a regular hexagon.

What is the sum of measure of its exterior angles x, y, z, p, q, r ?.



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36. Take a regular hexagon.

Is $x = y = z = p = q = r$? Why ?.



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37. Take a regular hexagon.

What is the measure of each ?

exterior angle.



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38. Take a regular hexagon.

What is the measure of each ?

interior angle.





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39. Take a regular hexagon.

Repeat this activity for the cases of
regular octagon



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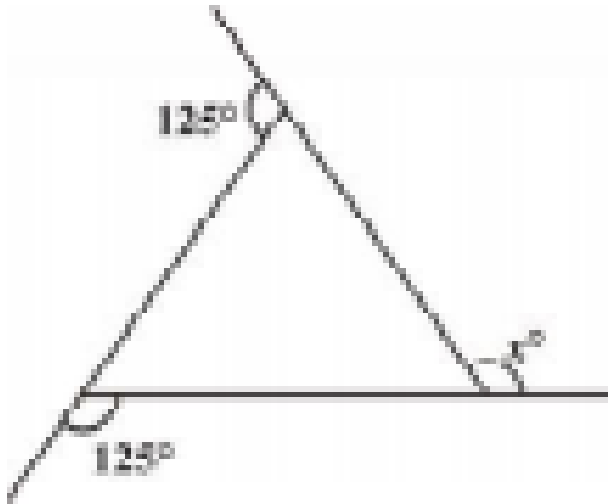
40. Take a regular hexagon.

Repeat this activity for the cases of
a regular 20-gon.



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41. Find x in the following figures.

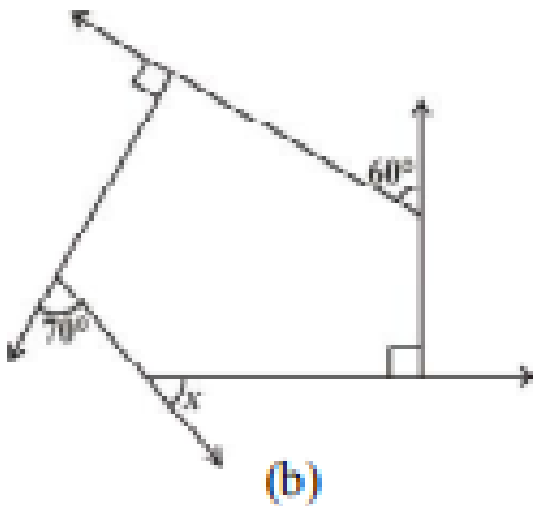


(a)



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42. Find x in the following figures.



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43. Find the measure of each exterior angle of a regular polygon of 9 sides

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44. Find the measure of each exterior angle of a regular polygon of 15 sides



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45. How many sides does a regular polygon have if the measure of an exterior angle is 24° ?



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46. How many sides does a regular polygon have if each of its interior angles is 165° ?



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47. Is it possible to have a regular polygon with measure of each exterior angle as 22° ?



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48. Can 22° be an interior angle of a regular polygon ? Why ?



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49. What is the minimum interior angle possible for a regular polygon? Why?



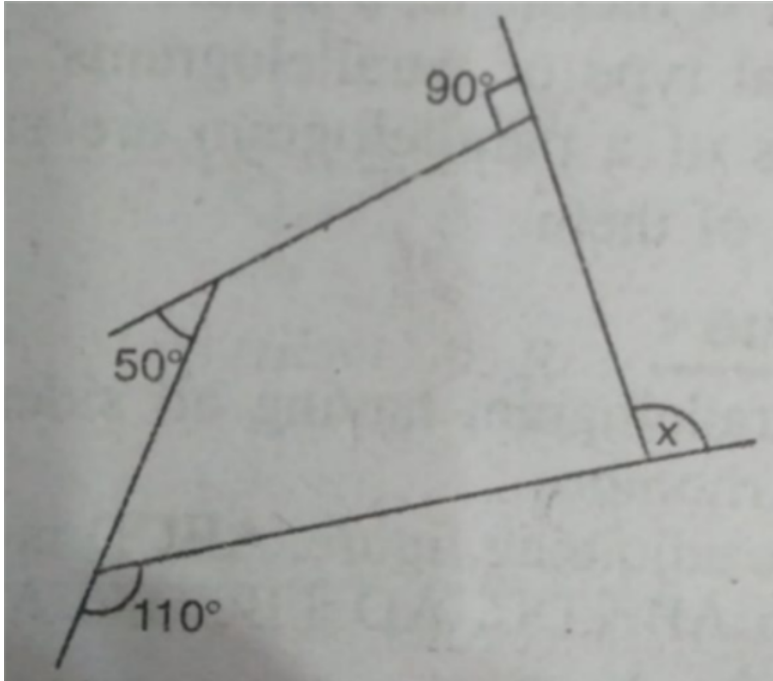
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50. What is the maximum exterior angle possible for a regular polygon?



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51. Find measure x in the following figure.



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52. Find the measure of each exterior angle of a regular polygon of 8 sides .



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53. Find the measure of each exterior angle of a regular polygon of 12 sides.



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54. Find the number of sides of a regular polygon whose each exterior angle has a measure of 40° .



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55. How many sides does a regular polygon have if each of its interior angles is 160° .



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56. Is it possible to have a regular polygon with measure of each exterior angle as 22° ?



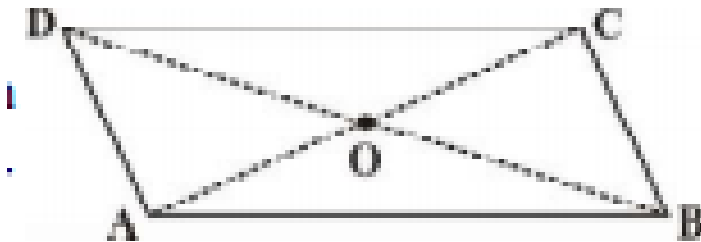
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57. What is the minimum interior angle possible for a regular polygon? Why?



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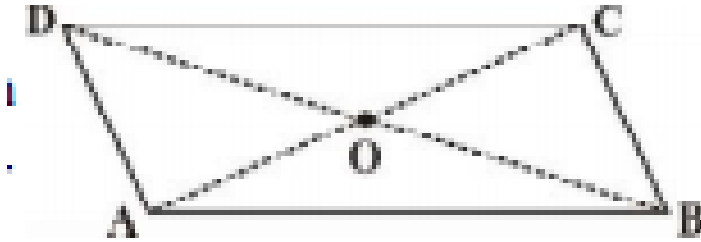
58. Given a parallelogram ABCD. Complete each statement along with the definition or property used $AD = \dots$



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59. Given a parallelogram ABCD. Complete each statement along with the definition or

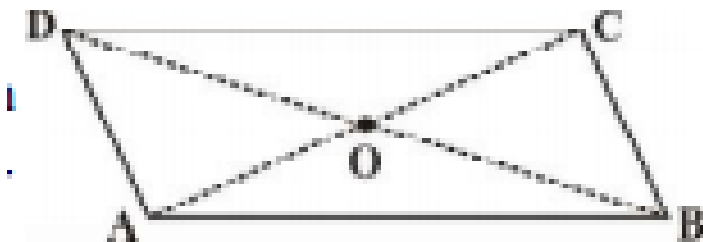
property used $\angle DCB = \dots$



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60. Given a parallelogram ABCD. Complete each statement along with the definition or

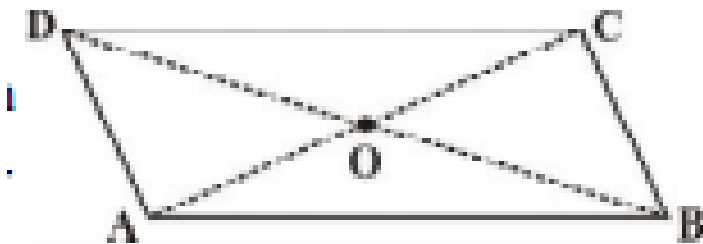
property used $OC = \dots$



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61. Given a parallelogram ABCD. Complete each statement along with the definition or

property used $m\angle DCB + m\angle CDA = \dots$



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62. Consider the following parallelograms.

Find the values of the unknowns x , y , z .



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63. Consider the following parallelograms.

Find the values of the unknowns x , y , z .

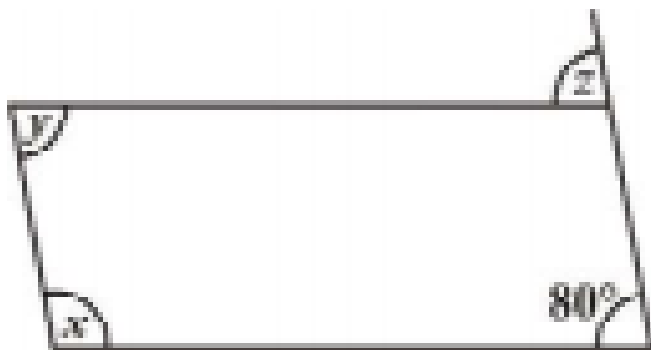


(IV)

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64. Consider the following parallelograms.

Find the values of the unknowns x , y , z .



(IV)



[Watch Video Solution](#)

65. Consider the following parallelograms.

Find the values of the unknowns x , y , z .



(iv)



Watch Video Solution

66. Consider the following parallelograms.

Find the values of the unknowns x , y , z .



(iv)



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67. Can a quadrilateral ABCD be a parallelogram if : $\angle D + \angle B = 180^\circ$?



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68. Can a quadrilateral ABCD be a parallelogram if : $AB=DC=8\text{cm}$, $AD=4\text{cm}$ and $BC=4.4\text{cm}$?



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69. Can a quadrilateral ABCD be a parallelogram if : $\angle A = 70^\circ$ and $\angle C = 65^\circ$?



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70. Draw a rough figure of a quadrilateral that is not a parallelogram but has exactly two opposite angles of equal measure.



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71. Two adjacent angles of a parallelogram have equal measure. Find the measure of each of the angles of the parallelogram.



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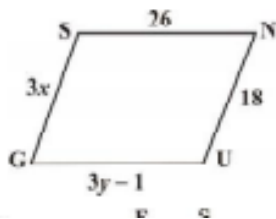
72. The adjacent figure HOPE is a parallelogram. Find the angle measures x , y and z . State the properties you use to find them.



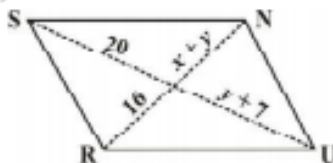
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73. The following figures GUNS and RUNS are parallelograms. Find x and y . (Lengths are in cm)

(i)



(ii)

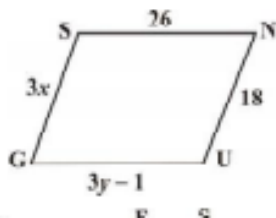




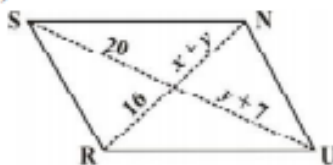
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74. The following figures GUNS and RUNS are parallelograms. Find x and y . (Lengths are in cm)

(i)

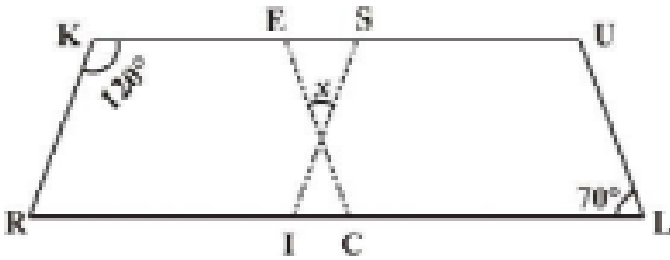


(ii)



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75.



In the above figure both $RISK$ and $CLUE$ are parallelograms. Find the value of x .



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76. Explain how this figure is a trapezium.

Which of its two sides are parallel? (Fig 3.32)

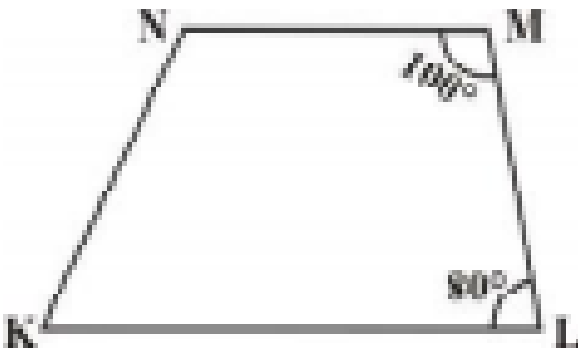


Fig 3.32



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77. Find $\angle C$ in the figure 3.33 if $AB \parallel DC$.



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78. Find the measure of $\angle P$ and $\angle S$ if $SP \parallel RQ$ in Fig. (If you find m angle R, is there more than one method to find m angle P ?).



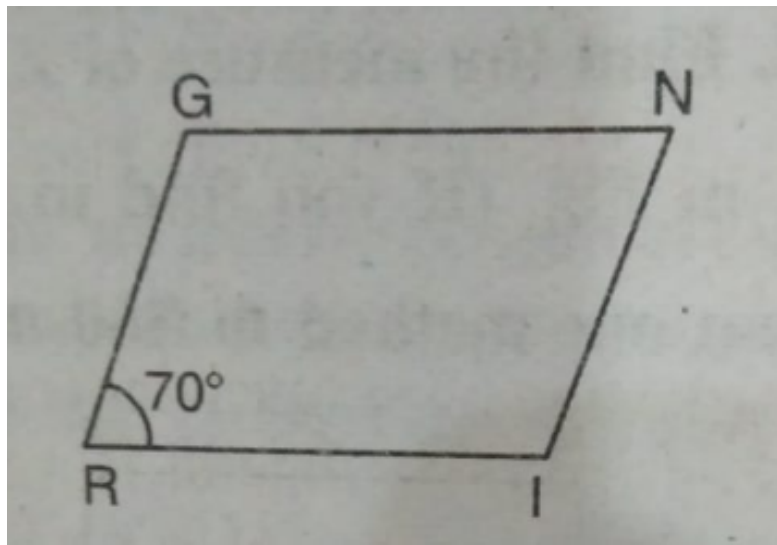
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79. In adjoining figures BEST is a parallelogram. Find the values of x, y and z .



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80. In the adjoining parallelogram RING if $m\angle R = 70^\circ$, find all the other angles.



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81. In Fig 3.31 HELP is a parallelogram. (Lengths are in cms). Given that $OE = 4$ and HL is 5 more

than PE? Find OH.

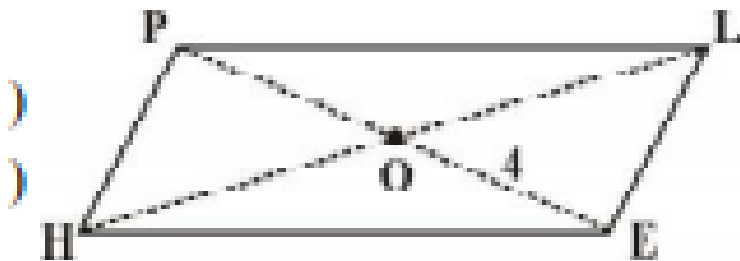


Fig 3.31



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82. ABCD is a parallelogram in which $\angle A = 110^\circ$. Find the measure of each of the angles $\angle B$, $\angle C$ and $\angle D$.



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83. Two adjacent angles of a parallelogram have equal measure. Find the measure of each of the angles of the parallelogram.



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84. Two adjacent angles of a parallelogram are in the ratio 4 : 5. Find the measure of each of its angles.



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85. The sum of two opposite angles of a parallelogram is 130° . Find the measure of each of its angles.



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86. In the adjoining figure, ABCD is a parallelogram in which $\angle BAD = 75^\circ$ and $\angle DBC = 60^\circ$.

Calculate: $\angle CDB$ and $\angle ADB$.



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87. Two adjacent angles for a parallelogram are as $2 : 3$. Find the measure of each of its angles.



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88. State whether True or False. All rectangles are squares



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89. State whether True or False. All rhombuses are parallelograms



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90. State whether True or False. All squares are rhombuses and also rectangles



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91. State whether True or False. All squares are not parallelograms.



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92. State whether True or False. All kites are rhombuses.



Watch Video Solution

93. State whether True or False. All rhombuses are kites.



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94. State whether True or False. All parallelograms are trapeziums.



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95. State whether True or False. All squares are trapeziums.



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96. Identify all the quadrilaterals that have four sides of equal length



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97. Identify all the quadrilaterals that have four right angles



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98. Explain how a square is. a quadrilateral



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99. Explain how a square is. a parallelogram



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100. Explain how a square is. a rhombus



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101. Explain how a square is. a rectangle



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102. Name the quadrilaterals whose diagonals.

bisect each other



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103. Name the quadrilaterals whose diagonals are perpendicular bisectors of each other



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104. Name the quadrilaterals whose diagonals are equal



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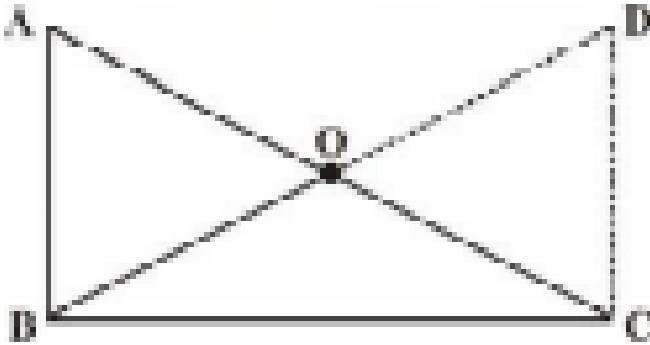
105. Explain why a rectangle is a convex quadrilateral.



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106. ABC is a right-angled triangle and O is the mid point of the side opposite to the right angle. Explain why O is equidistant from A, B and C. (The dotted lines are drawn additionally

to help you).



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107. State whether True or False. All rectangles are squares

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108. Which of the following statements are True or False :

A square is a rectangle.



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109. Which of the following statements are True or False :

A rhombus is a square.



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110. Which of the following statements are True or False :

The diagonals of a rectangle bisect each other at right angles.



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111. Which of the following statements are True or False :

The diagonals of a parallelogram bisect each other.



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112. Which of the following statements are True or False :

A parallelogram with one right angle is a square.



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113. Which of the following statements are True or False :

If the diagonals of a quadrilateral are equal and

bisect each other at right angles then the quadrilateral is a square.



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114. Which of the following statements are True or False :

If the diagonals of a parallelogram are equal then it is a rectangle.



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115. The number of diagonals in a convex polygon with number of sides 4 are:

A. One

B. Two

C. Three

D. Four.

Answer:



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116. How many diagonals a regular hexagon has ?

A. Two

B. Four

C. Nine

D. Ten.

Answer:



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117. What is the sum of the measures of the angles of a quadrilateral?

A. 90°

B. 180°

C. 360°

D. 540° .

Answer:



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118. The angle sum of a convex polygon with seven sides will be :

A. 180°

B. 360°

C. 540°

D. 900° .

Answer:



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119. the name of a regular polygon of 3 sides is

:

A. Equilateral triangle

B. Isosceles triangle

C. Scalene triangle

D. None of these.

Answer:



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120. State the name of a regular polygon of 4 sides :

A. Rectangle

B. Square

C. Parallelogram

D. Regular Hexagon.

Answer:



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121. In the figure ,find the value of $x + y + z$ is :

A. 90°

B. 360°

C. 180°

D. 120°

Answer:



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122. What is the measure of an external angle in a regular octagon ?

A. 40°

B. 90°

C. 50°

D. 45°

Answer:



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123. The measure of each interior angle of a regular 20-gon is :

A. 108°

B. 162°

C. 18°

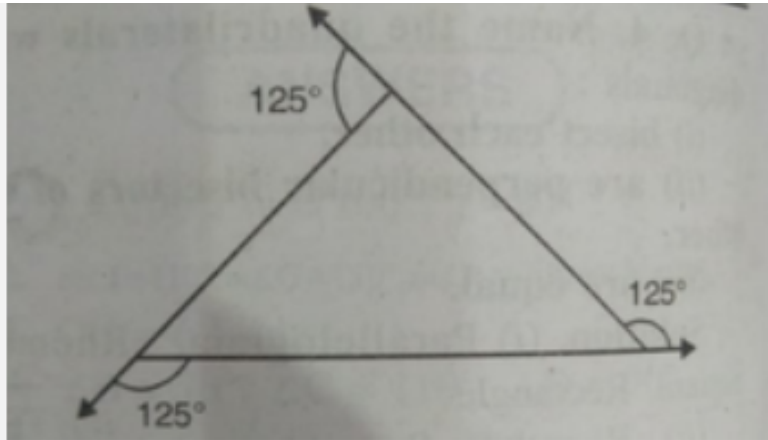
D. 120°

Answer:



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124. In the figure , the value of x is :



A. 125°

B. 90°

C. 110°

D. 120°

Answer:



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125. If the measure of each interior angle of a regular polygon is 165° , then the number of its sides are :

A. 20

B. 22

C. 24

D. 25

Answer:



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126. What is the minimum interior angle possible for a regular polygon? Why?

A. 20°

B. 30°

C. 50°

D. 60°

Answer:



127. What is the maximum exterior angle possible for a regular polygon?

A. 100°

B. 120°

C. 180°

D. 360°

Answer:



128. RENT is a rectangle.(See the figure) its diagonals intersect each other at O .If $OR = 2x + 4$ and $OT = 3x + 1$.Then value of x will be:



A. 2

B. 1

C. 3

D. 4

Answer:



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