



MATHS

BOOKS - MTG IIT JEE FOUNDATION

SYMMETRY

Solved Examples

1. Complete the following figures in such a manner that the dotted line becomes a line of

symmetry.



2. Complete the following figures in such a manner that the dotted line becomes a line of

symmetry.



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3. Complete the following figures in such a manner that the dotted line becomes a line of symmetry.

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9. Draw the lines of symmetry for the following

figures.



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10. Trace the figures and draw the missing parts to make them symmetrical along the dotted line.



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11. How many lines of symmetry are possible to

be drawn on the letters given below :



12. How many lines of symmetry are possible to be drawn on the letters given below :





13. How many lines of symmetry are possible to be drawn on the letters given below :



14. How many lines of symmetry are possible to be drawn on the letters given below :





15. Write the letters of the English Alphabet that have both horizontal and vertical line of symmetry.



16. Draw the mirror images of the given letters,

if mirror is placed along the dotted line.



17. Draw the mirror images of the given letters, if mirror is placed along the dotted line.



18. In which of the following figures, dotted lines represents line of symmetry?



19. In which of the following figures, dotted lines represents line of symmetry?



20. Copy the following figures and draw all the

possible lines of symmetry.





21. Copy the following figures and draw all the

possible lines of symmetry.





22. Copy the following figures and draw all the

possible lines of symmetry.



23. Write the letters of the English alphabet

which have only one line of symmetry.





Illustrations

1. Check whether the following figures are symmetric or not. If yes, draw the line of

symmetry in each of the following.





2. Check whether the following figures are symmetric or not. If yes, draw the line of

symmetry in each of the following.



3. Check whether the following figures are symmetric or not. If yes, draw the line of

symmetry in each of the following.





4. Check whether the following figures are symmetric or not. If yes, draw the line of symmetry in each of the following.











6. Complete all the figures along their line of

symmetry.





7. Complete all the figures along their line of symmetry.



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8. Complete all the figures along their line of

symmetry.



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9. Complete all the figures along their line of

symmetry.





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10. Trace each of the given figure and draw the

lines of symmetry, if any.

	1						1	
					1	1		
		£0.		2	1		N	
		10					1	
1				2	1	1		1
	1				1		1	
			2					



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11. Trace each of the given figure and draw the

lines of symmetry, if any.
					T.
		4			1
1.0	<u> </u>				
				1.5	
				N	
			1		
	10			-	
		1			
			1		

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12. Trace each of the given figure and draw the

lines of symmetry, if any.















18. Draw all lines of symmetry, if possible, for each of the following letters.





19. Draw all lines of symmetry, if possible, for each of the following letters.





20. Draw all lines of symmetry, if possible, for each of the following letters.



21. Draw all lines of symmetry, if possible, for

each of the following letters.





22. Draw all lines of symmetry, if possible, for each of the following letters.



23. Draw all lines of symmetry, if possible, for

each of the following letters.



24. Trace the figure and complete each of them

such that the resulting figure has two dotted

lines as their lines of symmetry.



25. Trace the figure and complete each of them

such that the resulting figure has two dotted

lines as their lines of symmetry.



26. Trace the figure and complete each of them such that the resulting figure has two dotted lines as their lines of symmetry.



27. Trace the figure and complete each of them such that the resulting figure has two dotted lines as their lines of symmetry.





28. Draw the mirror image of the given figures,

if the mirror is placed vertically to the right of

the given figure.





29. Draw the mirror image of the given figures,

if the mirror is placed vertically to the right of

the given figure.





30. Draw the mirror image of the given figures, if the mirror is placed vertically to the left of the given figures.





31. Draw the mirror image of the given figures, if the mirror is placed vertically to the left of the given figures.





1. List any four symmetrical objects from your

home or school.

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2. For the given figure, which one is the mirror

line, l_1 or l_2 ?



line of symmetry as well.





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line of symmetry as well.







line of symmetry as well.





line of symmetry as well.











is the line of symmetry.

























15. In the figure, l is the line of symmetry. Complete the diagram to make it symmetric.





16. In the figure, l is the line of symmetry. Draw the image of the triangle and complete the






Ncert Section Exercise 13 2

1. Find the number of lines of symmetry for each of the following shapes :









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3. Find the number of lines of symmetry for each of the following shapes :





4. Find the number of lines of symmetry for each of the following shapes :













each of the following shapes :





8. Find the number of lines of symmetry for





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9. Find the number of lines of symmetry for each of the following shapes :





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10. Copy the triangle in each of the following figures on squared paper. In each case, draw the line(s) of symmetry, if any and identify the type of triangle. (Some of you may like to trace

the figures and try paper-folding first!)



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11. Copy the triangle in each of the following figures on squared paper. In each case, draw

the line(s) of symmetry, if any and identify the

type of triangle. (Some of you may like to trace

the figures and try paper-folding first!)



12. Can you draw a triangle which has

exactly one line of symmetry?

Sketch a rough figure in each case.



13. Can you draw a triangle which has

exactly two lines of symmetry?

Sketch a rough figure in each case.

14. Can you draw a triangle which has

exactly three lines of symmetry?

Sketch a rough figure in each case.

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15. Can you draw a triangle which has

no lines of symmetry?

Sketch a rough figure in each case.

16. On a squared paper, sketch the following:

A triangle with a horizontal line of symmetry

but no vertical line of symmetry.

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17. On a squared paper, sketch the following:

A quadrilateral with both horizontal and

vertical lines of symmetry.

18. On a squared paper, sketch the following:

A quadrilateral with a horizontal line of symmetry but no vertical line of symmetry.



19. On a squared paper, sketch the following:

A hexagon with exactly two lines of symmetry.



20. On a squared paper, sketch the following:

A hexagon with six lines of symmetry.

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25. Trace each figure and draw the lines of symmetry, if any:



26. Consider the letters of English alphabets, A

to Z. List among them the letters which have



vertical lines of symmetry (like A)

27. Consider the letters of English alphabets, A

to Z. List among them the letters which have



horizontal lines of symmetry (like B)

28. Consider the letters of English alphabets, A

to Z. List among them the letters which have



no lines of symmetry (like Q)

Ncert Section Exercise 13 3

1. Find the number of lines of symmetry in each of the following shapes. How will you check your answers?





2. Find the number of lines of symmetry in each of the following shapes. How will you check your answers?





3. Find the number of lines of symmetry in each of the following shapes. How will you check your answers?





4. Find the number of lines of symmetry in each of the following shapes. How will you check your answers?





5. Copy the following drawing on squared paper. Complete each one of them such that

the resulting figure has two dotted lines as

two lines of symmetry.



How did you go about completing the picture?

6. Copy the following drawing on squared paper. Complete each one of them such that the resulting figure has two dotted lines as two lines of symmetry.



How did you go about completing the picture?





7. Copy the following drawing on squared paper. Complete each one of them such that the resulting figure has two dotted lines as two lines of symmetry.

	-		
	-		
	-		
	-		
	1	1	

	1		

How did you go about completing the picture?

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8. Copy the following drawing on squared paper. Complete each one of them such that

the resulting figure has two dotted lines as

two lines of symmetry.



How did you go about completing the picture?
9. Copy the following drawing on squared paper. Complete each one of them such that the resulting figure has two dotted lines as two lines of symmetry.



How did you go about completing the picture?



10. In each figure alongside, a letter of the alphabet is shown along with a vertical line. Take the mirror image of the letter in the given line. Find which letters look the same after reflection (i.e. which letters look the same in the image) and w



Exercise Multiple Choice Questions Level 1

1. Number of line of symmetry in the given

figure is



A. 1

B. 2

C. 3

D. 0

Answer: D

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2. The number of lines of symmetry in a scalene triangle is

A. 1

B. 3

C. 2

D. 0

Answer: D

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3. How many lines of symmetry does an isosceles triangle has?

A. One

B. Two

C. Four

D. Three

Answer: A

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4. For the following figure which one is the mirror line?



A. l_1

 $\mathsf{B}.\,l_2$

 $\mathsf{C}.\,l_3$

D. l_4

Answer: A



5. In the following English Alphabets, a vertically symmetrical letter is

A. B

B.C

C. D

D. A

Answer: D





6. Which of the following figure having only

one line of symmetry?





Β.

C.





7. Which of the following alphabets have only

horizontal line of symmetry?

A. W

B. R

C. P

D. none of these

Answer: D



8. Which of the following figures has at most 2

lines of symmetry?

A. Regular hexagon

B. Square

C. Regular pentagon

D. Rectangle

Answer: D



9. Which of these has only two lines of symmetry?

A. H

B. B

C. V

D. S

Answer: A



10. Which of the following words will read the same when placed in front of the horizontal mirror?

A. HIDE

B. CAKE

C. SOON

D. SOUR

Answer: A

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11. Which of the following alphabets have the

same mirror image?

B.J

C. G

D. U

Answer: D

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12. How many lines of symmetry are there in

the given figure?



d,

A. One

B. Two

C. Three

D. Four

Answer: D

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13. Which of the following is the mirror image

of F?

A. 📄

<u>Н</u> в. с. ғ

D.

Answer: D



14. Find the number of lines of symmetry in the given figure.



A. One

B. Two

C. Three

D. Four

Answer: B

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15. A figure that shows a line of symmetry is





16. Lines of symmetry of a regular pentagon

B. 8

C. 4

D. 6

Answer: B

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17. Number of line of symmetry in the given

figure is



A. 0

B. 1

C. 2

D. 3





18. Number of line of symmetry in a right angled isosceles triangle is

A. 0

B.1

C. 2

D. 3





19. How many lines of symmetry does the given

figure have?



A. 0

B. 1

D. 3

Answer: C

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20. The mirror image of V, if mirror is placed vertically to the right is

B. \wedge

D. >

Answer: A

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Exercise Multiple Choice Questions Level 2

1. How many of the following figures have

more than two lines of symmetry?



A. 1

B. 2

C. 4

D. 3

Answer: B



2. Which of the following options most closely represents the mirror image of the given figure, if the mirror is placed vertically to the

right?





A.

Β.

C.







Answer: C

D

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3. Check which of the following figures are symmetrical.



A. Both (i) and (ii)

B. Only (iv)

C. (i), (iii) and (iv)

D. All of these

Answer: D





4. How many lines of symmetry do the following figures have?



A.
$$\begin{bmatrix} i & ii \\ 2 & 2 \end{bmatrix}$$

B. $\begin{bmatrix} i & ii \\ 4 & 2 \end{bmatrix}$
C. $\begin{bmatrix} i & ii \\ 2 & 4 \end{bmatrix}$
D. $\begin{bmatrix} i & ii \\ 4 & 4 \end{bmatrix}$

Answer: C



5. How many of the given figures have more

than one line of symmetry?









A. 1

B. 2

D. 4

Answer: B

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6. How many of the following figures have

exactly two lines of symmetry?



A. 1

C. 3

D. 4

Answer: B



7. Which of the following figures are

symmetrical?



A. Both (i) and (ii)

B. Only (ii)

C. Both (ii) and (iii)

D. Only (iii)

Answer: B

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8. How many of the given alphabets have same mirror image, if they are placed in front of

horizontal mirror?

	S	U	Е	D	Ν	А
-						
	A. 1					
	B. 2					
	C. 3					
	D. 4					

Answer: B


9. How many line(s) of symmetry do the

following figures have?



Answer: C



- B. 1
- C. 2
- D. 3





Exercise Match The Following

1. In this section each question has two matching lists. Choices for the correct combination of elements from List-I and List-II are given as options (a), (b), (c) and (d) out of which one is correct.

Match the following characters given in List-I

with their correct mirror images given in List-II.



A. P-4, Q-1, R-3, S-2

B. P-2, Q-4, R-1, S-3

C. P-1, Q-2, R-3, S-4

D. P-3, Q-2, R-1, S-4

Answer: B



2. In this section each question has two matching lists. Choices for the correct combination of elements from List-I and List-II are given as options (a), (b), (c) and (d) out of which one is correct.

Match the following:



List-II

- No line of symmetry
- 2. One line of symmetry
- Two lines of symmetry
- 4. Four lines of symmetry

A. P-4, Q-2, R-3, S-1

B. P-2, Q-4, R-3, S-1

C. P-2, Q-4, R-1, S-3

D. P-4, Q-3, R-2, S-1





Exercise Comprehension Type

1. PASSAGE : If a line divides a given figure into two identical halves, then we say that the given figure is symmetrical and the line is called a line of symmetry

The number of lines of symmetry in the given

figure is __ .



A. 2

B. 1

C. 0

D. 4

Answer: B

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2. PASSAGE : If a line divides a given figure into two identical halves, then we say that the given figure is symmetrical and the line is called a line of symmetry

Which square must be shaded so that the

figure has a line of symmetry?



A. A

B. B

C. C

D. D

Answer: B



3. PASSAGE : If a line divides a given figure into two identical halves, then we say that the given figure is symmetrical and the line is called a line of symmetry

How many minimum squares must be shaded

to make the given figure symmetric?



A. 1

B. 2

C. 3

D. 4



Exercise Subjective Problems Very Short Answer Type

1. Draw the lines of symmetry in each of the

following figures.





2. How many lines of symmetry are there in

two intersecting circles?



3. Draw two figures which have two lines of symmetry?

4. Draw the mirror image of each of the following.





6. Which of the following alphabets have only

horizontal line of symmetry?

DEFGHIJKLM



7. How many lines of symmetry are possible in

a ruler?

8. Complete the figure so that line l becomes

the line of symmetry of the whole figure.





9. How many lines of symmetry are there in a

protractor?



10. Draw the lines of symmetry in each of the

following, if any.



11. Draw the lines of symmetry in each of the

following, if any.



12. Draw the lines of symmetry in each of the following, if any.





13. Draw the lines of symmetry in each of the

following, if any.





14. Draw a semi circle and find the number of

lines of symmetry it has.

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Exercise Subjective Problems Short Answer Type

1. Find the number of lines of symmetry in each of the following.





2. Draw the reflection of the given shape

taking the dotted line as the mirror line.









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5. Define axis of symmetry with the help of suitable figure.

6. Find the digits from 0 to 9 which are mirror

symmetric.

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7. Draw a triangle with three lines of symmetry.

Also write the measures of each of its angles

8. Draw the mirror image of the following figures.





9. Draw the mirror image of the following figures.



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10. Draw the mirror image of the following figures.



11. Draw the mirror image of the following

figures.



12. Draw the mirror image of the following figures.





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13. How can you read the word "DICE" when it

is placed in front of the mirror horizontally?

14. Complete the other side along the two dotted lines as the lines of symmetry.





15. Complete the other side along the two dotted lines as the lines of symmetry.



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16. Check whether the following shapes are symmetrical or not.



17. Check whether the following shapes are symmetrical or not.



18. Check whether the following shapes are symmetrical or not.


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19. Check whether the following shapes are symmetrical or not.





Exercise Subjective Problems Long Answer Type

How many English alphabets have same mirror image?
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Exercise Integer Numerical Value Type

1. How many lines of symmetry are there in the

net of triangular prism?

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2. What is 3k, if k is the number of lines of symmetry in the following figure?



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3. How many lines of symmetry are there in

our National Flag?

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4. In the word "REFLECTION", how many of the letters do not have same mirror image if mirror placed horizontally?

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5. If a line segment of length 5 cm is reflected in a line of symmetry (mirror), then what will be the length (in cm) of its reflection?



Olympiad Hots Corner

1. How many of the following figures are symmetrical?

(ii)



(iv)

B



(i)

(iii)

(v)

(viii)

(vi)



(ix) (x)



A. 9

B. 10

D. 6

Answer: D

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2. Which of the following figures has more than three lines of symmetry?







Answer: C



3. Which of the following figures does not have any line of symmetry?









Answer: D

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4. Which of the following square(s) must be shaded so that given figure is symmetric along both lines LM and AB?



A. R and S

B. P only

C. Q and P

D. Q only

Answer: C

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5. Which of the following figures has/have at

least one line of symmetry?



A. I and II

B. I and III

C. II and III

D. I, II and III

Answer: B

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6. How many of the following letters have at

least one line of symmetry?

OLYMPIAD

A. 3

B. 4

C. 5

D. 6

Answer: C

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7. Which of the following shows a symmetrical

figure?







Β.



C.



Answer: B



8. Which of the following shows a reflection of the figure(X) across the RS ?







Answer: B



9. How many minimum squares must be shaded to make the given figure symmetric?



A. 1

B. 2

C. 3

D. 4

Answer: B



10. Which of the following squares would you

shade to make the figure symmetrical?



A. B and D

B. A and C

C. D and C

D. B and C

Answer: D

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11. Read the statements given below and identify the correct option.

(i) A parallelogram has only one line of

symmetry.

(ii) A square and a rectangle have the same number of lines of symmetry.

(iii) The diameter of a circle is its line of symmetry.

	(i)	(ii)	(iii)
(a)	False	True	False
(b)	True	False	True
(c)	False	False	True
(d)	False	False	False

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12. What is the least number of squares that

must be added so that the line MN becomes a

line of symmetry?



A. 5

B. 6

C. 4

D. 8

Answer: B

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13. What is the smallest number of squares that must be shaded so that the line AB

becomes the line of symmetry?



A. 4

B. 3

C. 5

D. 7

Answer: A



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