

NCERT Solutions for Symmetry

Exercise 13.1

Question 1

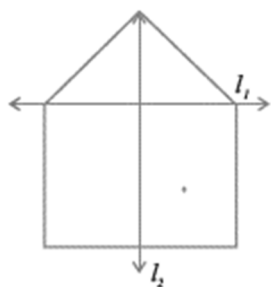
List any four symmetrical objects from your home or school.

Answer

- a) Paper sheet
- b) Kite
- c) CD
- d) Glass

Question 2

For the given figure, which one is the mirror line, l_1 or l_2 ?



Answer

l_2

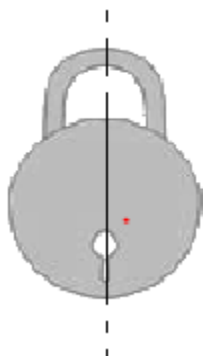
Question 3

Identify the shapes given below. Check whether they are symmetric or not. Draw the line of symmetry as well.

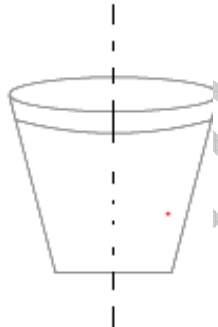


Answer

a) This is symmetrical

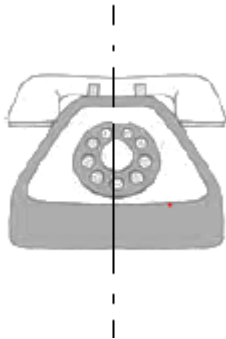


b) This is symmetrical

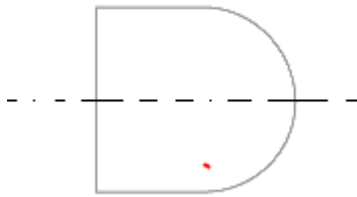


c) This is not symmetrical

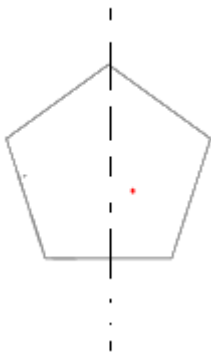
d) This is symmetrical



e) This is not symmetrical



f) This is symmetrical

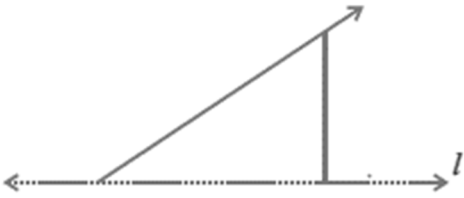


Question 4

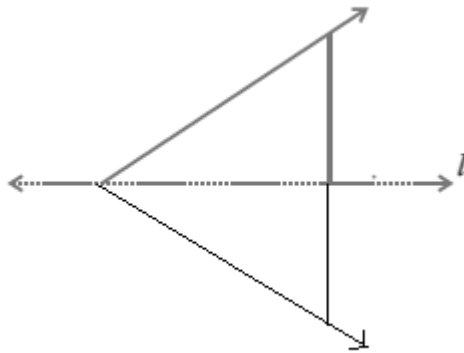
Copy the following on a squared paper. A square paper is what you would have used in your arithmetic notebook in earlier classes. Then complete them such that the dotted line is the line of symmetry.

Question 5

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

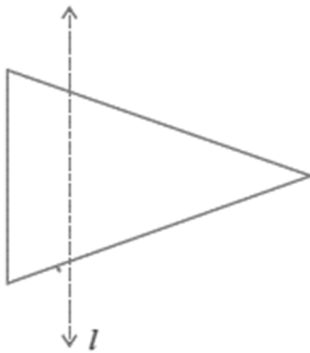


Answer

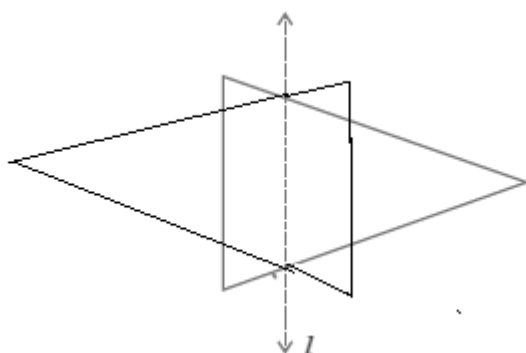


Question 6

In the figure, l is the line of symmetry.
Draw the image of the triangle and complete the diagram
so that it becomes symmetric.



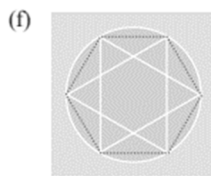
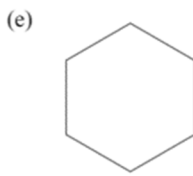
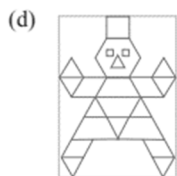
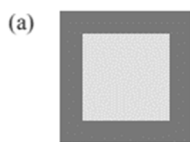
Answer



Exercise 13.2

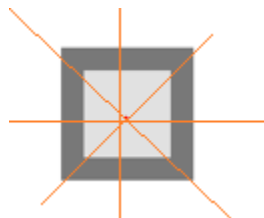
Question 1

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

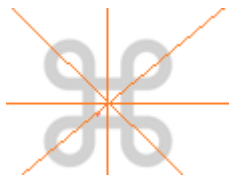


Answer

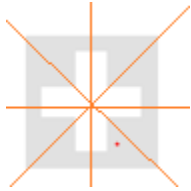
(a) There are total 4 lines of symmetry in the given figure.



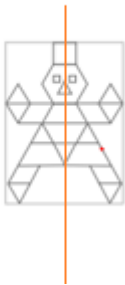
(b) There are total 4 lines of symmetry in the given figure.



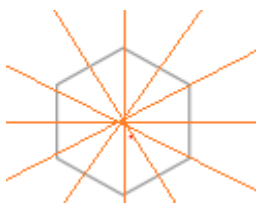
(c) There are total 4 lines of symmetry in the given figure.



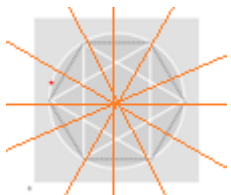
(d) There is only 1 line of symmetry in the given figure.



(e) There are total 6 lines of symmetry in the given figure.



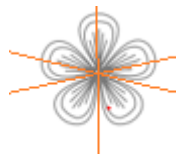
(f) There are total 6 lines of symmetry in the given figure.



(g) There is no line of symmetry in the given figure.

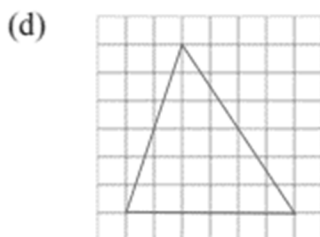
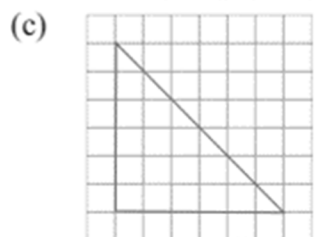
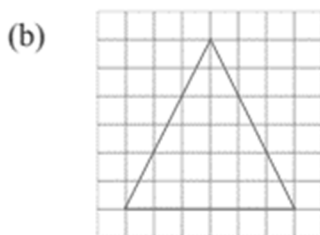
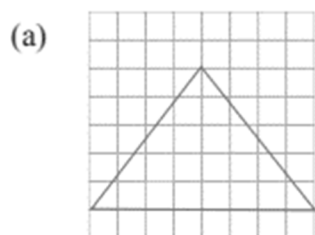
(h) There is no line of symmetry in the given figure.

(i) There are total 3 lines of symmetry in the given figure.



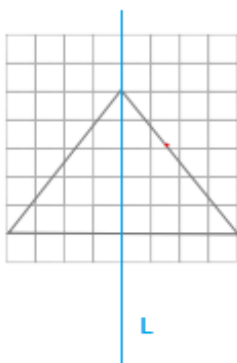
Question 2

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!)

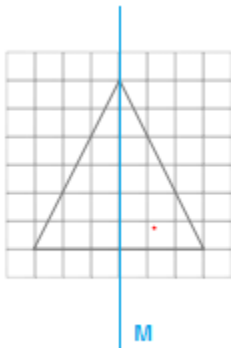


Answer

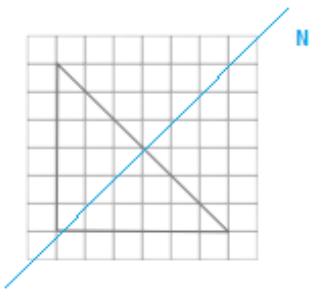
a) This figure has line of symmetry as L



b) This figure has line of symmetry as M



c)
This figure has line of symmetry as N



d) There is no line of symmetry

Question 3

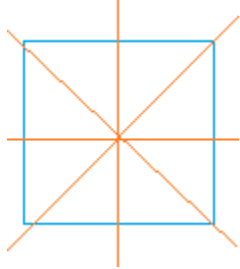
Complete the following table.

Shape	Rough figure	Number of lines of symmetry
Equilateral triangle		3
Square		
Rectangle		
Isosceles triangle	.	
Rhombus		
Circle		

Answer

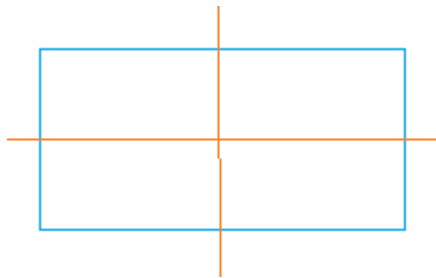
a) Square

Number of lines of symmetry: 4



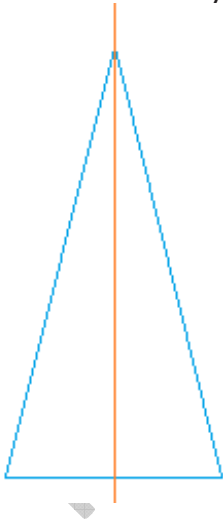
b) Square

Number of lines of symmetry: 2



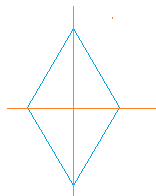
c) Isosceles Triangle

Number of lines of symmetry: 1



d) Rhombus

Number of lines of symmetry: 2



e) Circle

Number of lines of symmetry: infinite

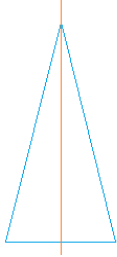
Question 4. Can you draw a triangle which has?

- (a) exactly one line of symmetry?
- (b) exactly two lines of symmetry?
- (c) exactly three lines of symmetry?
- (d) no lines of symmetry?

Answer

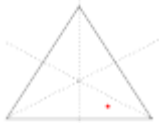
a) Isosceles Triangle

Number of lines of symmetry: 1

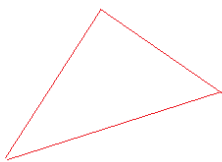


b) It is not possible to draw which has two lines of symmetry

c) Equilateral triangle



d) Scalene triangle where all sides are different



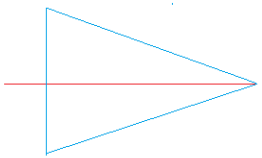
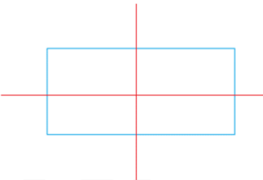
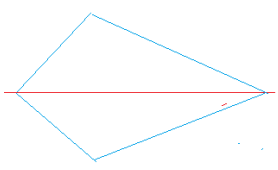
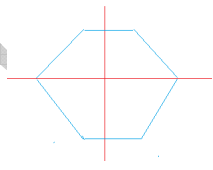
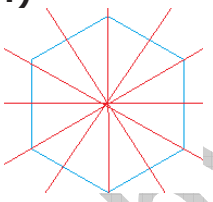
Question 5

On a squared paper, sketch the following:

- A triangle with a horizontal line of symmetry but no vertical line of symmetry.
- A quadrilateral with both horizontal and vertical lines of symmetry.
- A quadrilateral with a horizontal line of symmetry but no vertical line of symmetry.
- A hexagon with exactly two lines of symmetry.
- A hexagon with six lines of symmetry.

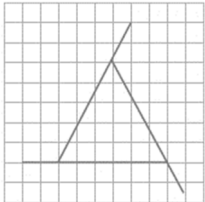
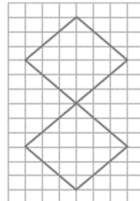
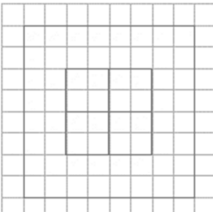
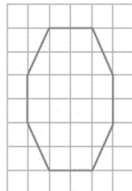
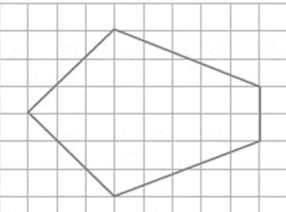
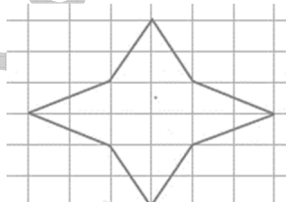
(**Hint:** It will be helpful if you first draw the lines of symmetry and then complete the figures.)

Answer

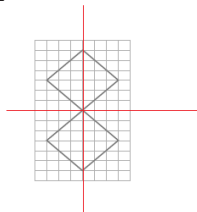
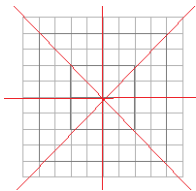
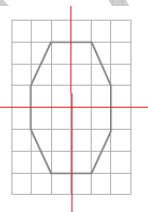
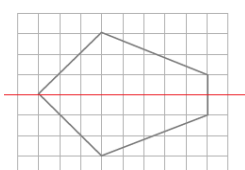
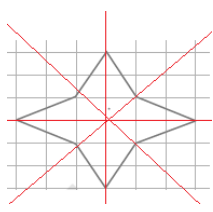
<p>a)</p> 	<p>b)</p> 
<p>c)</p> 	<p>e)</p> 
<p>f)</p> 	

Question 6

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

<p>a)</p> 	<p>b)</p> 
<p>c)</p> 	<p>d)</p> 
<p>e)</p> 	<p>f)</p> 

Answer

a) No line of symmetry	b) Two lines 
c) Four lines 	d) Two lines 
e) One line 	f) Four lines 

a

Question 7

Consider the letters of English alphabets, A to Z. List among them the letters which have

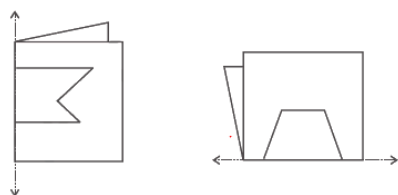
- (a) vertical lines of symmetry (like A)
- (b) horizontal lines of symmetry (like B)
- (c) no lines of symmetry (like Q)

Answer

- a) A, H, I, M, O, T, U, V, W, X, Y
b) B, C, D, E, H, I, K, O, X
c) F, G, J, L, N, P, Q, R, S, Z

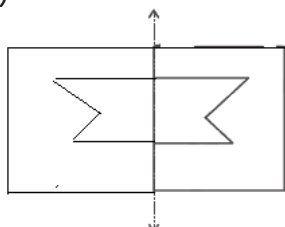
Question 8

Given here are figures of a few folded sheets and designs drawn about the fold. In each case, draw a rough diagram of the complete figure that would be seen when the design is cut off

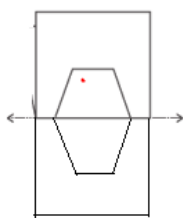


Answer

a)



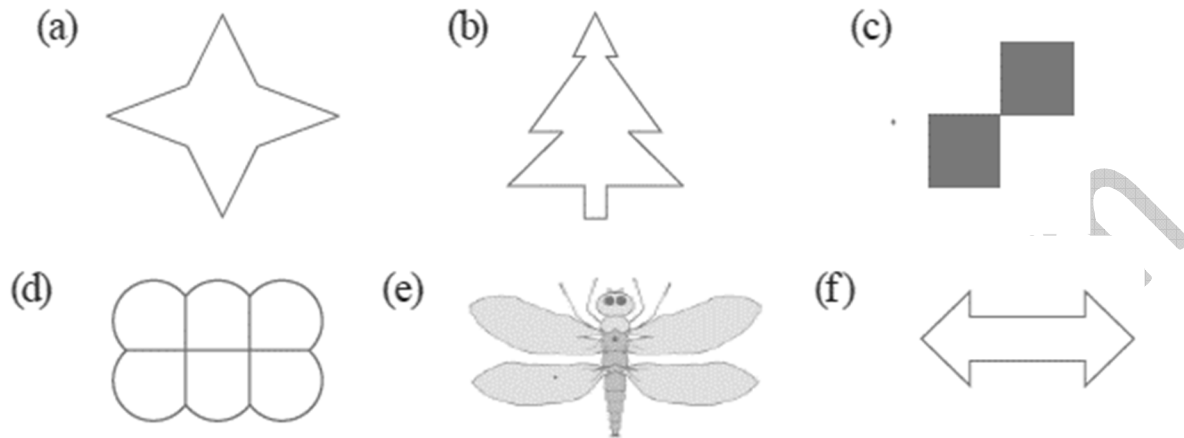
b)



Exercise 13.3

Question 1

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

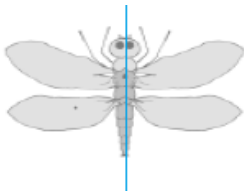


Answer

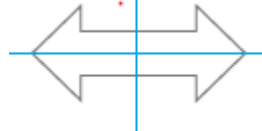
Symmetry lines are shown by Blue lines

<p>a) This figure has four lines of symmetry</p>	<p>b) This figure has only one line of symmetry</p>
<p>c) This figure has two lines of symmetry</p>	<p>d) This figure has two lines of symmetry</p>

e) This figure has one line of symmetry

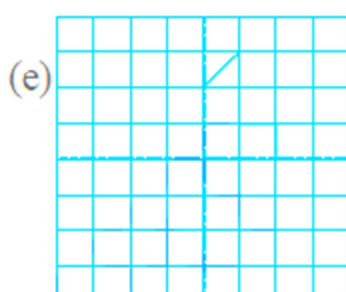
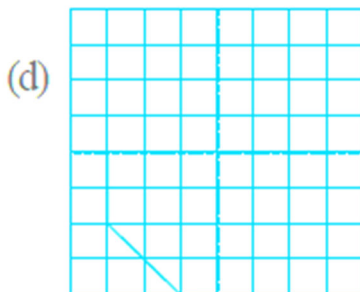
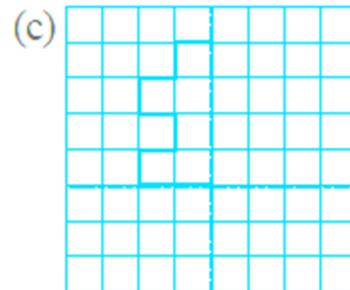
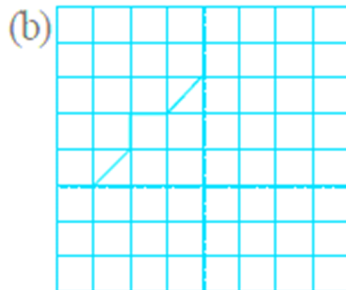
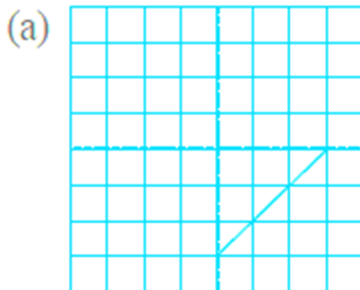


f) This figure has two lines of symmetry



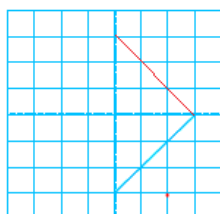
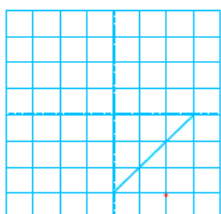
Question 2

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.

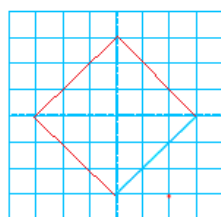


Answer

a)

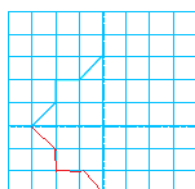
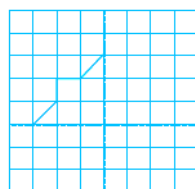


Doing symmetry around horizontal line

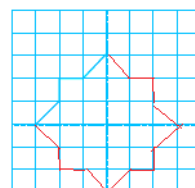


Doing symmetry around vertical line

b)

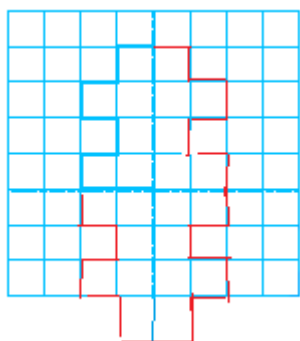


Symmetry around horizontal line

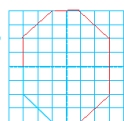


Symmetry around vertical line

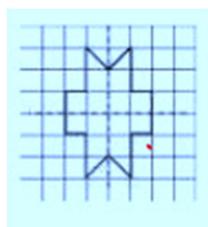
c)



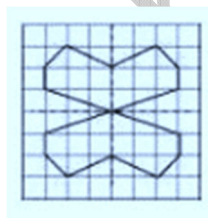
d)



e)

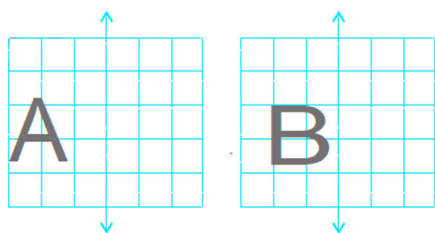


f)



Question 3

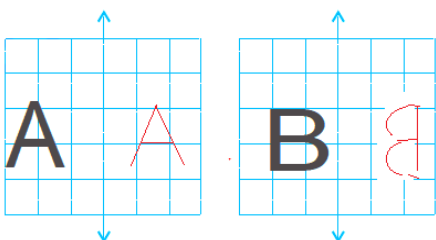
In each figure alongside, a letter of the alphabet is shown along with a vertical line. Take the mirror image of the letter in the given line. Find which letters look the same after reflection (i.e. which letters look the same in the image) and which do not. Can you guess why?



Try for O E M N P H L T S V X

Answer

a)



b)

O	O	E	E
M	M	N	N
P	P	H	H
L	L	S	S
V	V		