

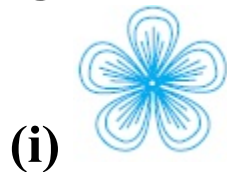
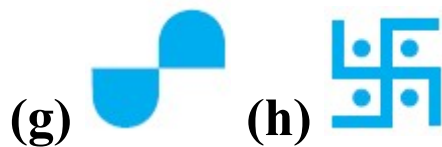
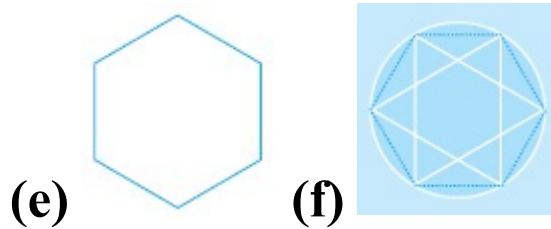
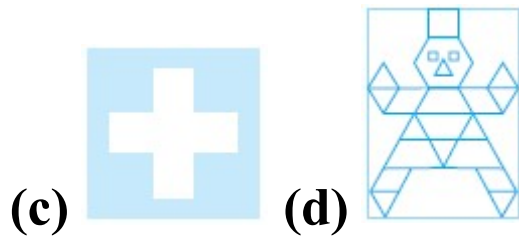
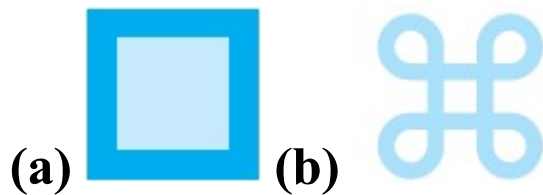
CHAPTER – 13

Symmetry

EXERCISE – 13.2

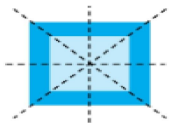
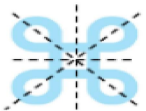
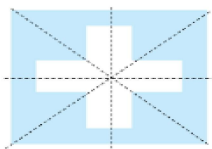
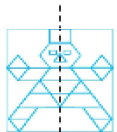
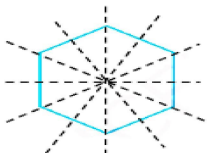
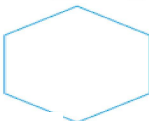
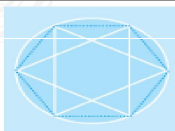


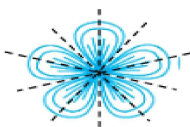
Q. 1

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



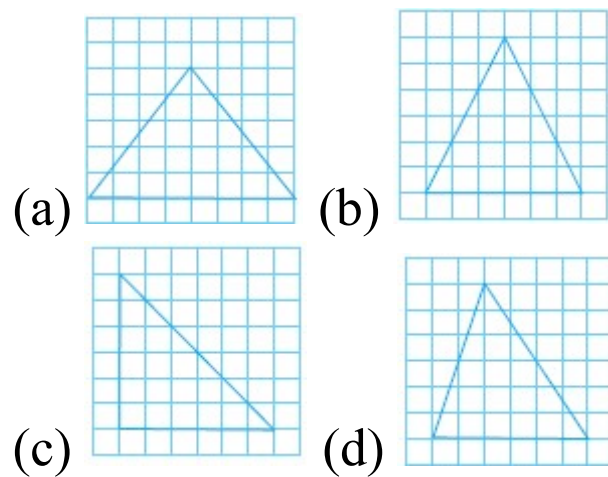
Answer:

The following figures have the following lines of symmetry:

(a)		The given figure has 4 lines of symmetry.
(b)		The given figure has 4 lines of symmetry.
(c)		The given figure has 4 lines of symmetry.
(d)		The given figure has only 1 line of symmetry.
(e)		The given figure has 6 lines of symmetry.
(f)		The given figure has 6 lines of symmetry.
(g)		The given figure has 6 lines of symmetry.
(h)		The given figure is asymmetrical. Thus, no line of symmetry.
(i)		The given figure is asymmetrical. Thus, no line of symmetry.
(j)		The given figure has 5 lines of symmetry.

Q. 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:

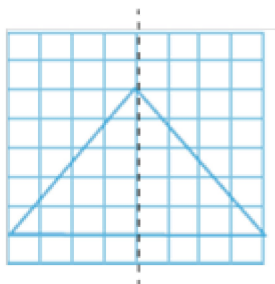
(a) At first,

We have to copy the figure,

And, then

We have to draw the line of symmetry if present.

Thus,



Hence,

We can observe that,

There is only one line of symmetry

Therefore,

It is an isosceles triangle.

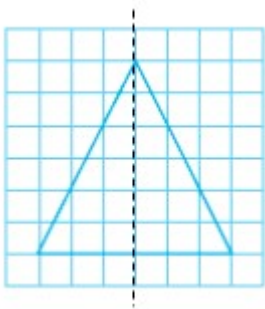
(b) At first,

We have to copy the figure,

And, then

We have to draw the line of symmetry if present.

Thus,



Hence,

We can observe that,

There is only one line of symmetry

Therefore,

It is an isosceles triangle.

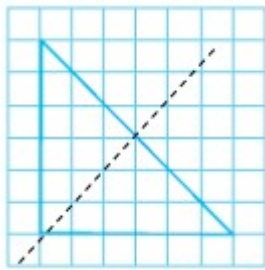
(c) At first,

We have to copy the figure,

And, then

We have to draw the line of symmetry if present.

Thus,



Hence,

We can observe that,

There is only one line of symmetry

And,

An angle is right angled

Therefore,

It is a right-angled isosceles triangle.

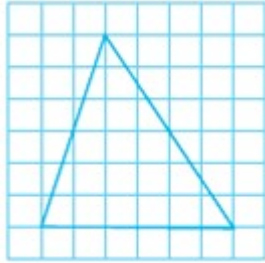
(d) At first,

We have to copy the figure,

And, then

We have to draw the line of symmetry if present.

Thus,



Now,

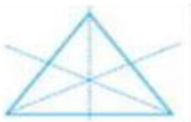
We can observe that there is no line of symmetry possible in the figure.

Hence,

The given triangle is a scalene triangle.

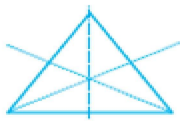
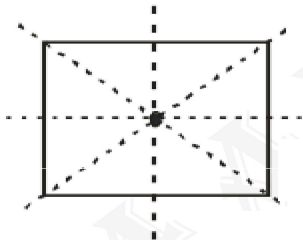
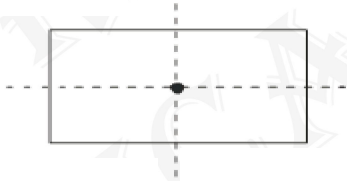
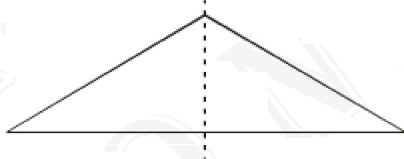
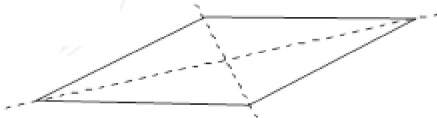
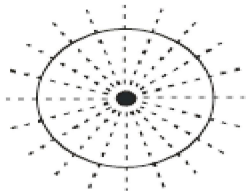
Q. 3

Complete the following table:

Shape	Rough figure	Number of lines of symmetry
Equilateral Triangle		
Square		
Rectangle		
Isosceles Triangle		
Rhombus		
Circle		

Answer:

We can fill the given table as follows:

Shape	Rough figure	Number of lines of symmetry
Equilateral Triangle		3
Square		4
Rectangle		2
Isosceles Triangle		1
Rhombus		2
Circle		Infinite

Q. 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) Here,

We have to draw a triangle which has only one line of symmetry.

Hence,

For the given case,

We will draw an isosceles triangle.

Therefore,

The triangle can be drawn as:



(b) Here,

We have to draw a triangle which has only two lines of symmetry.

But,

We know that,

There exists no triangle with only two symmetry lines.

Hence,

For the given case,

No such triangle is possible.

(c) Here,

We have to draw a triangle which has only three lines of symmetry.

Hence,

For the given case,

We will draw an equilateral triangle.

Therefore,

The triangle can be drawn as:

Q. 5

On a squared paper, sketch the following:

(a) A triangle with a horizontal line of symmetry but no vertical line of symmetry.

- (b) A quadrilateral with both horizontal and vertical lines of symmetry.
- (c) A quadrilateral with a horizontal line of symmetry but no vertical line of symmetry.
- (d) A hexagon with exactly two lines of symmetry.
- (e) A hexagon with six lines of symmetry.

Answer:

(a) Here,

We have to draw a triangle which has only one line of symmetry that is horizontal line of symmetry

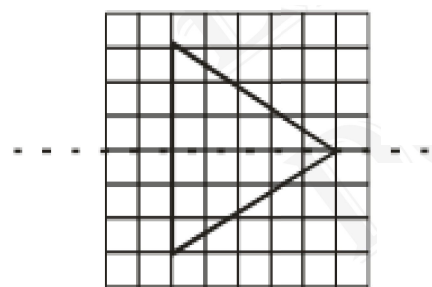
And,

No vertical line of symmetry.

Hence,

For the given case,

The triangle can be drawn as:



(b) Here,

We have to draw a quadrilateral which has both

The horizontal line of symmetry

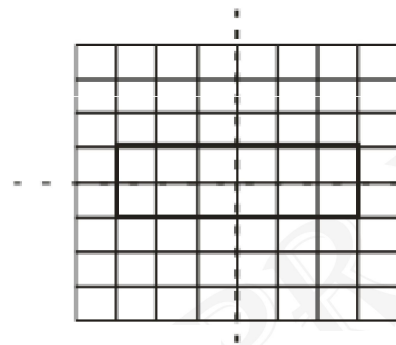
And,

The vertical line of symmetry

Hence,

For the given case,

The quadrilateral can be drawn as:



(c) Here,

We have to draw a quadrilateral which has only one line of symmetry that is:

The horizontal line of symmetry

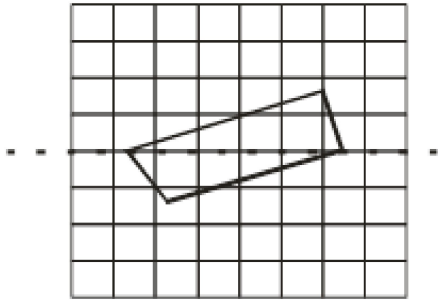
And,

No vertical line of symmetry

Hence,

For the given case,

The quadrilateral can be drawn as:



(d) Here,

We have to draw a hexagon which has exactly two lines of symmetry that is:

The horizontal line of symmetry

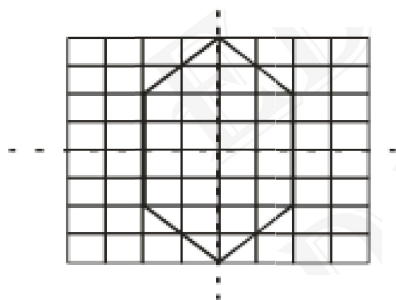
And,

The vertical line of symmetry

Hence,

For the given case,

The hexagon can be drawn as:



(e) Here,

We have to draw a hexagon which has in all six lines of symmetry

Now,

In order to draw such hexagon

At first,

We will draw those six lines of symmetry

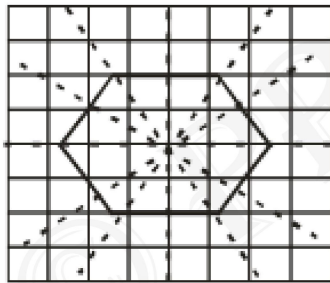
And, then

We will complete the hexagon

Hence,

For the given case,

The hexagon can be drawn as:



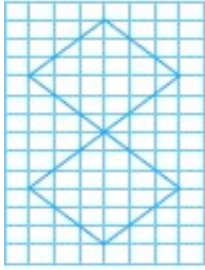
Q. 6

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

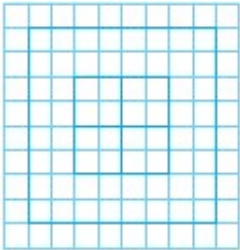
(a)



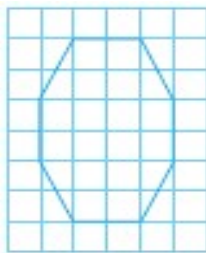
(b)



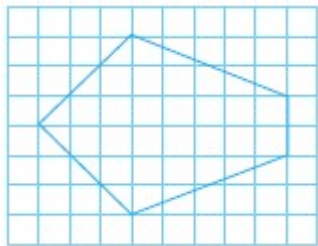
(c)



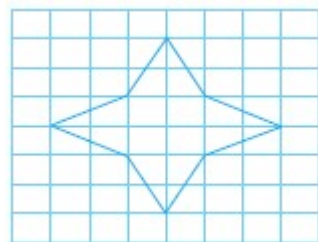
(d)



(e)



(f)



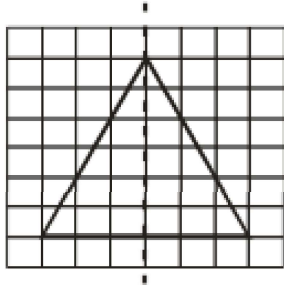
Answer:

(a) Here,

At first,

We have to trace the figure

Thus,



Now,

We can observe that

The given figure is an isosceles triangle

Hence,

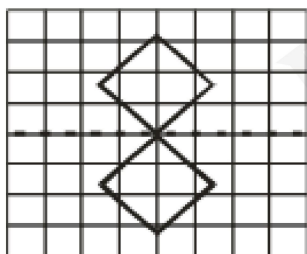
It will have only one line of symmetry.

(b) Here,

At first,

We have to trace the figure

Thus,



Now,

We can observe that

The given figure has two squares having a common vertex.

Hence,

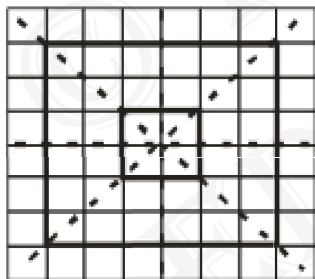
The figure will have two lines of symmetry.

(c) Here,

At first,

We have to trace the figure

Thus,



Now,

We can observe that

The given figure has two squares with a common centre

Hence,

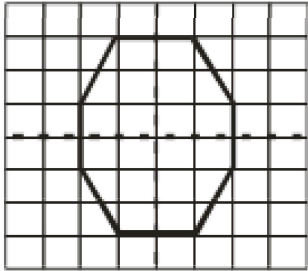
The figure will have four lines of symmetry

(d) Here,

At first,

We have to trace the figure

Thus,



Now,

We can observe that

The given figure is an octagonal

Hence,

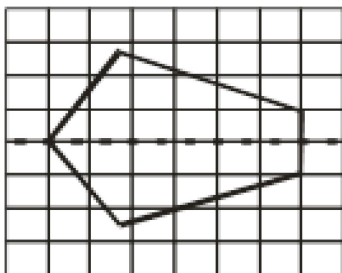
It will have two lines of symmetry.

(e) Here,

At first,

We have to trace the figure

Thus,



Now,

We can observe that

The given figure is not any specific figure

Hence,

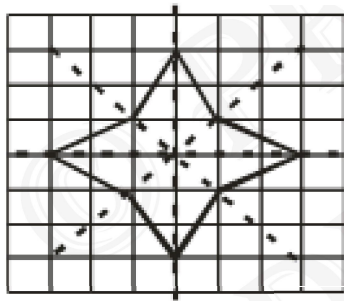
It will have only one line of symmetry.

(f) Here,

At first,

We have to trace the figure

Thus,



Now,

We can observe that

The given figure is a four cornered figure

Hence,

It will have four lines of symmetry.

Q. 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) The letters that have vertical line of symmetry are as follows:

A, H, I, M, O, T, U, V, W, X, Y

(b) The letters that have horizontal line of symmetry are as follows:

B, C, D, E, H, I, K, O, X

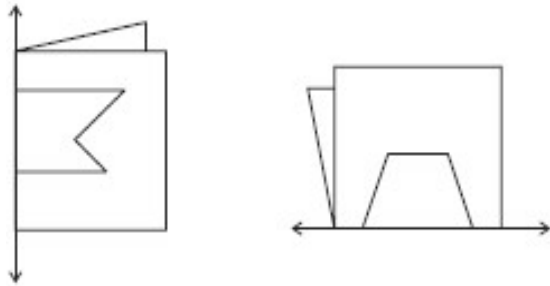
(c) The letters that have no line of symmetry are as follows:

F, G, J, L, N, P, Q, R, S, Z

Q. 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:

The complete figure will be as follows:

