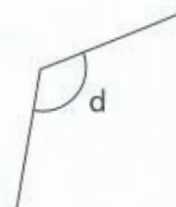


CHAPTER 12: ANGLES AND LINES

**Level 1**

**Exercise 1**

1. Look at the angles formed below from pairs of lines.



(a) Angle \_\_\_\_\_ is the smallest.

(b) Angle \_\_\_\_\_ is the greatest.

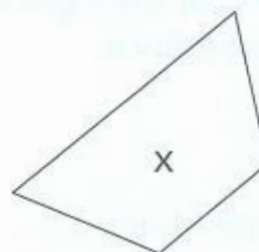
(c) Arrange the angles in order. Begin with the smallest.

Angle \_\_\_\_\_, angle \_\_\_\_\_, angle \_\_\_\_\_,

angle \_\_\_\_\_

2. Mark all the angles inside the shape shown and complete the sentence.

Figure X has \_\_\_\_\_ angles.



3. Mark all the angles inside the figures below and complete the sentence.

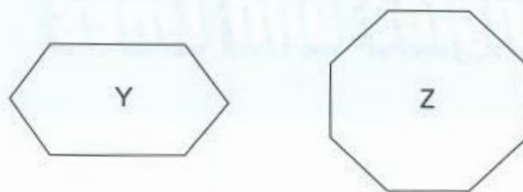
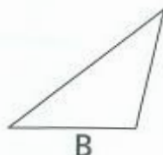


Figure Z has \_\_\_\_\_ more angles than figure Y.

4. Count the sides and the angles inside the figures below. Fill in the blanks with the correct answers.



- (a) Figure A has (i) \_\_\_\_\_ sides and (ii) \_\_\_\_\_ angles.  
 (b) Figure B has (i) \_\_\_\_\_ sides and (ii) \_\_\_\_\_ angles.  
 (c) Figure C has (i) \_\_\_\_\_ sides and (ii) \_\_\_\_\_ angles.

- (d) The number of sides of a figure is always (more than, equal to, less than)\* the number of angles inside the figure.  
 \*write down the correct answer \_\_\_\_\_

5. Mark all the right angles inside the figure below and complete the sentence.

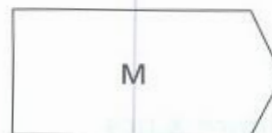
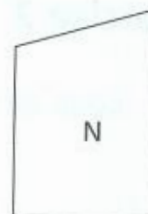


Figure M has \_\_\_\_\_ right angles.

6. Mark all the angles inside the figure on the right. Then, complete the sentences.



- (a) Figure N has \_\_\_\_\_ right angles.
- (b) Figure N has \_\_\_\_\_ acute angle(s).
- (c) Figure N has \_\_\_\_\_ obtuse angle(s).

7. The figure on the right has \_\_\_\_\_ right angles.



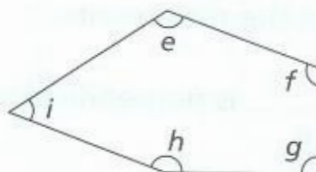
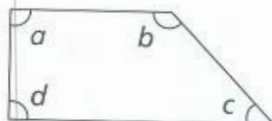
8. The figure on the right has \_\_\_\_\_ obtuse angles.



9. The figure on the right has \_\_\_\_\_ acute angles.



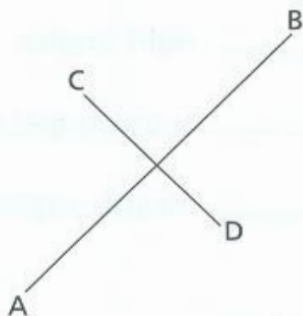
10. Look at all the angles inside the figures below and group them according to the table.



Acute angle	Right angle	Obtuse angle

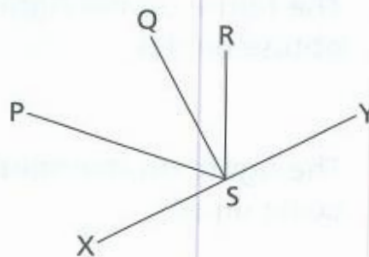
**Exercise 2**

1. Look at the diagram below and complete the sentence.



AB is perpendicular to CD because AB and CD meet at a \_\_\_\_\_ angle.

2. Which line is perpendicular to XY?

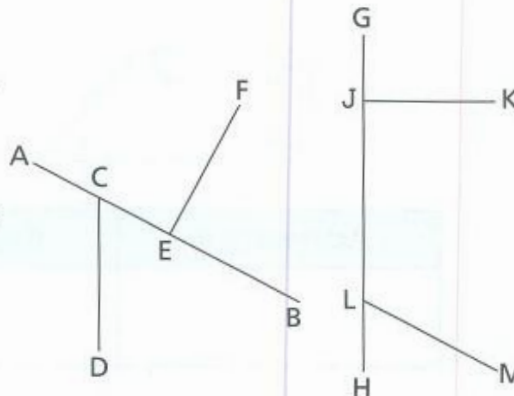


\_\_\_\_\_ is perpendicular to XY.

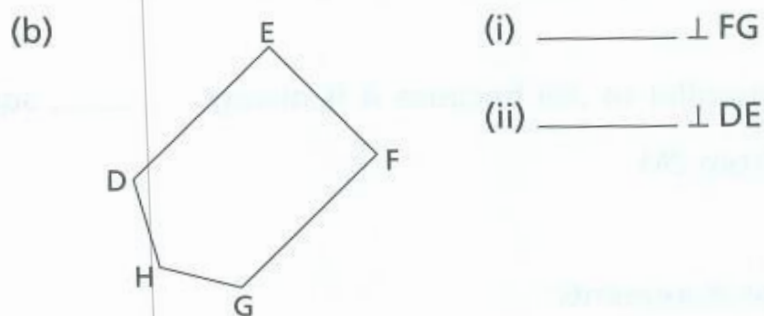
3. Complete the statements.

(a) \_\_\_\_\_ is perpendicular to AB.

(b) \_\_\_\_\_ is perpendicular to GH.



4. Complete the statements to name the pair(s) of perpendicular lines in each figure.

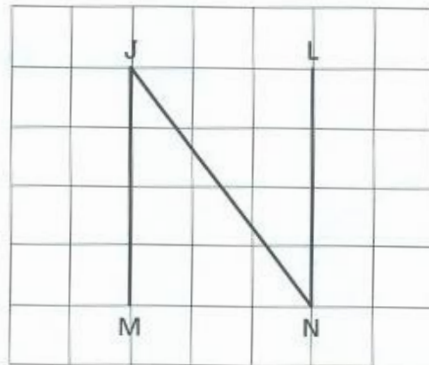


5. Look at the diagram below and complete the sentence.



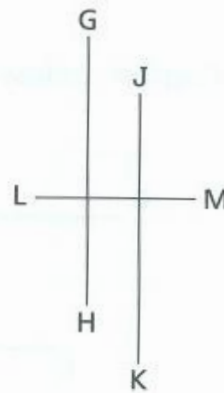
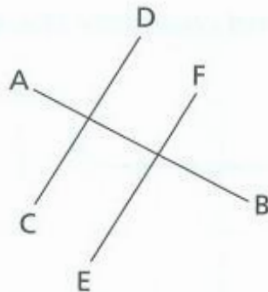
GH is parallel to EF because GH is always \_\_\_\_\_ square units away from EF.

6. Complete the statement.



\_\_\_\_\_ is parallel to JM because it is always \_\_\_\_\_ square units away from JM.

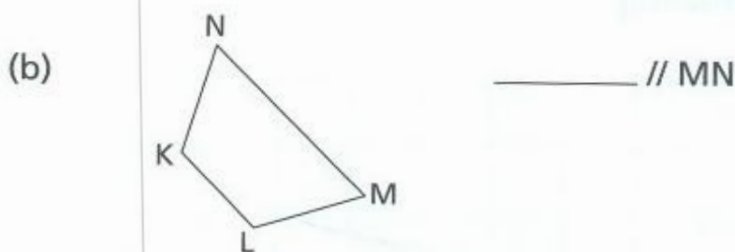
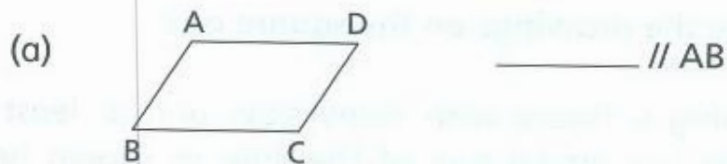
7. Complete the statements.



(a) \_\_\_\_\_ is parallel to CD.

(b) \_\_\_\_\_ is parallel to JK.

8. Complete the statements to name a pair of parallel lines in each figure.



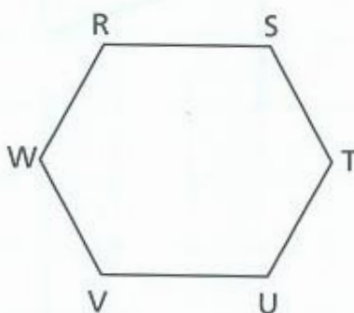
9. Look at the figure on the right and complete the sentences.

(a) There are \_\_\_\_\_ pairs of parallel lines.

(b) There are \_\_\_\_\_ pairs of perpendicular lines.



10. Name the three pairs of parallel lines in the figure.



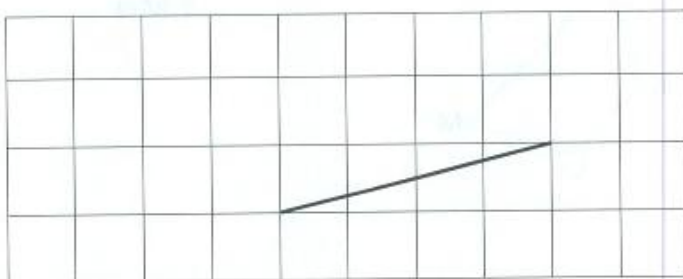
\_\_\_\_\_ // \_\_\_\_\_, \_\_\_\_\_ // \_\_\_\_\_, \_\_\_\_\_ // \_\_\_\_\_

## CHAPTER 12: ANGLES AND LINES

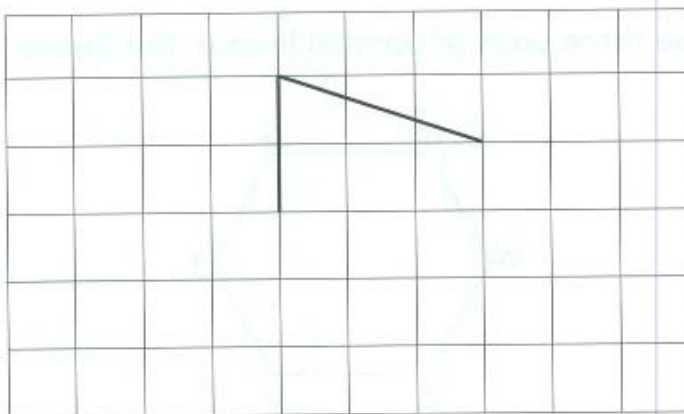
**Level 2** 

Exercise 1 – Complete the drawings on the square grid.

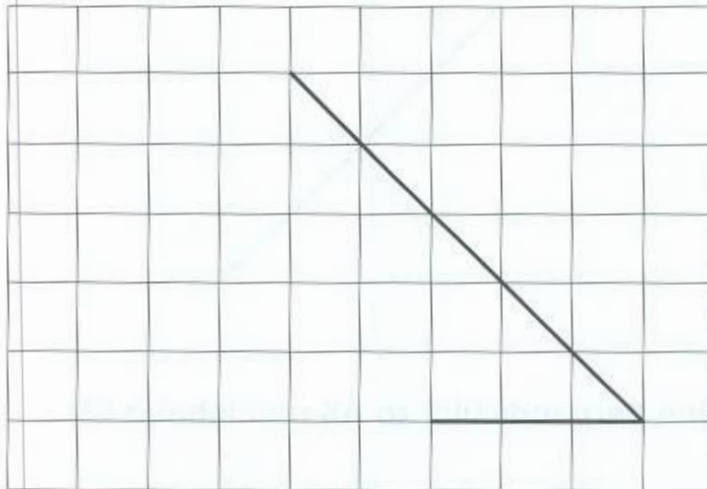
1. Gabriel is drawing a figure with three sides and at least two acute angles. He has drawn one of the lines as shown below. Complete his drawing.



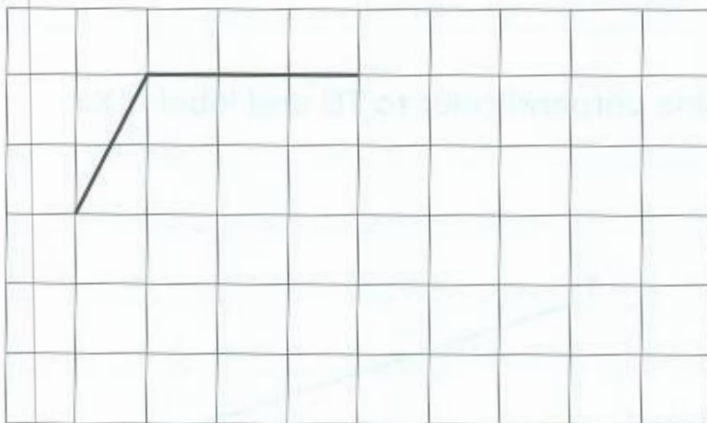
2. Daniel is drawing a figure with two acute angles and two obtuse angles. He has drawn two of the lines as shown below. Complete his drawing.



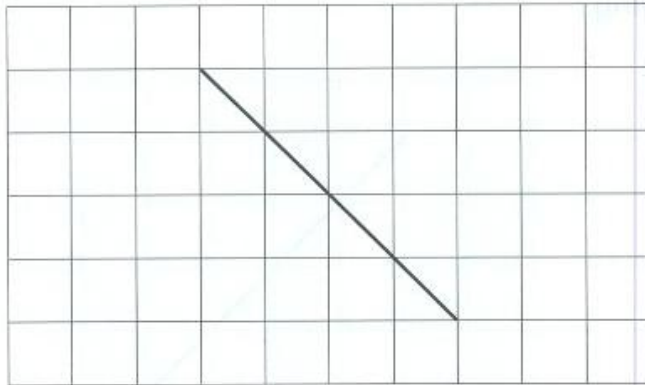
3. Siti is drawing a figure with one acute angle and four obtuse angles. She has drawn two of the lines as shown below. Complete her drawing.



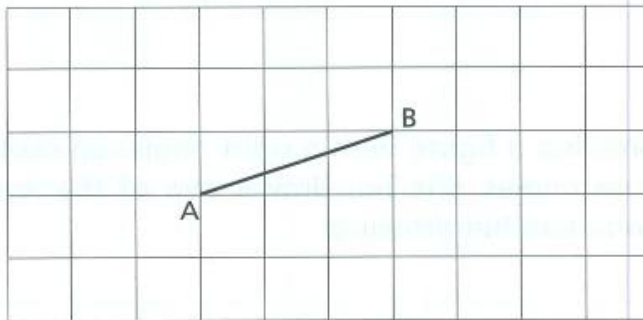
4. Joey is drawing a figure with a right angle, an acute angle and four obtuse angles. She has drawn two of the lines as shown below. Complete her drawing.



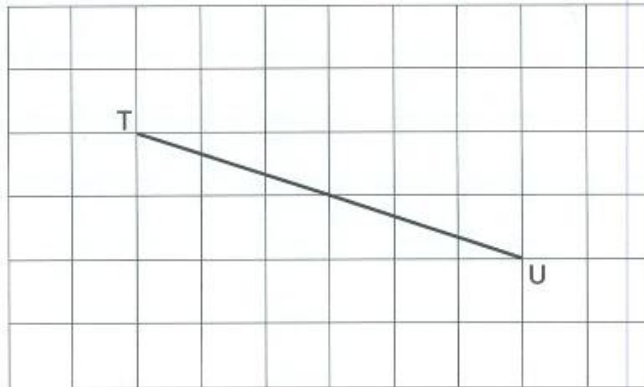
5. Draw a line perpendicular to the line below.



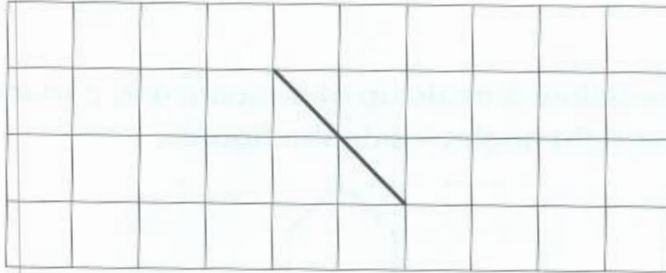
6. Draw a line perpendicular to AB and label it CD.



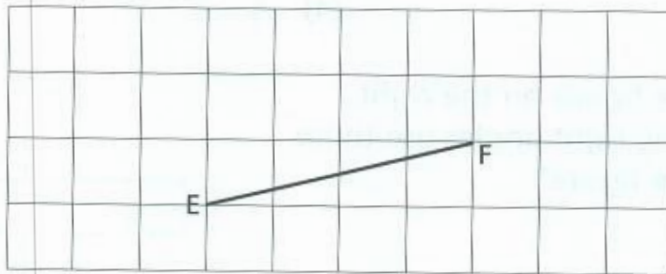
7. Draw a line perpendicular to TU and label it XY.



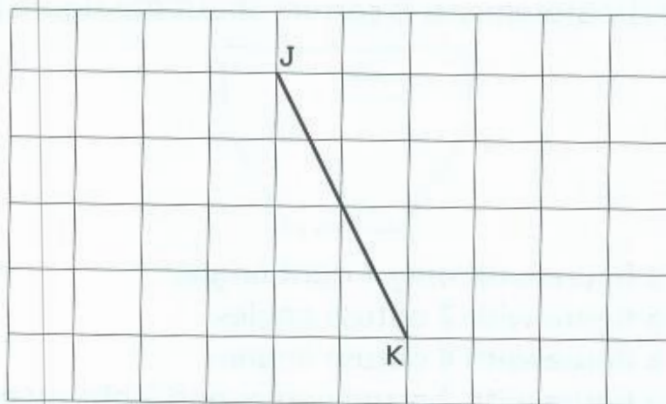
8. Draw a line parallel to the line below.



9. Draw a line parallel to EF and label it GH.



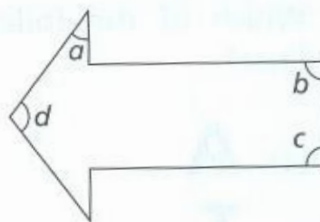
10. Draw a line parallel to JK and label it MN.





4. Which of the labelled angles in the figure on the right is an obtuse angle?

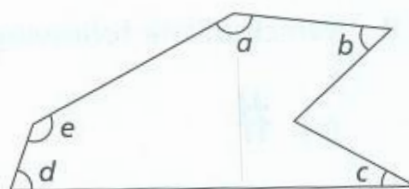
- (1)  $a$
- (2)  $b$
- (3)  $c$
- (4)  $d$



(     )

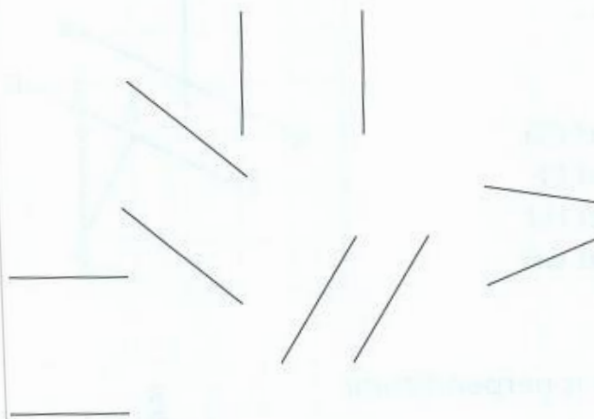
5. How many of the labelled angles in the figure on the right are acute angles?

- (1) 1
- (2) 2
- (3) 3
- (4) 4



(     )

6. How many pairs of parallel lines are there in the diagram below?



- (1) 5
- (3) 3

- (2) 6
- (4) 4

(     )

7. Which of the following letters has a pair of perpendicular lines?

(1) **A**

(2) **X**

(3) **T**

(4) **Z**

( )

8. Which of the following symbols has parallel lines?

(1) **#**

(2) **Y**

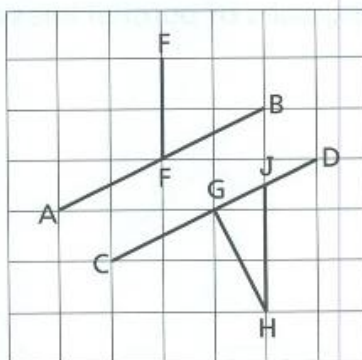
(3) **→**

(4) **4**

( )

9. In the diagram, the pair of perpendicular lines is \_\_\_\_\_.

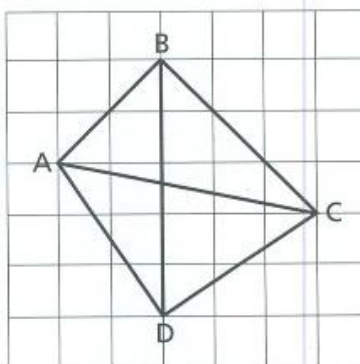
- (1) AB and CD
- (2) AB and EF
- (3) CD and HJ
- (4) CD and GH



( )

10. Which line is perpendicular to AB?

- (1) AD
- (2) BC
- (3) BD
- (4) CD



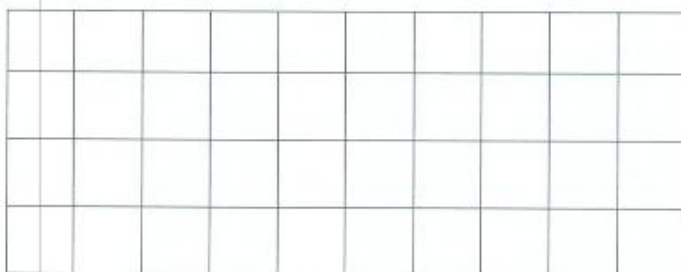
( )

## CHAPTER 12: ANGLES AND LINES

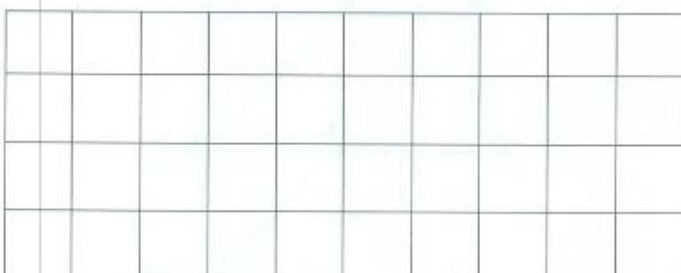
**Level 3****Exercise 1**

Draw the figures with the following properties on the square grid.

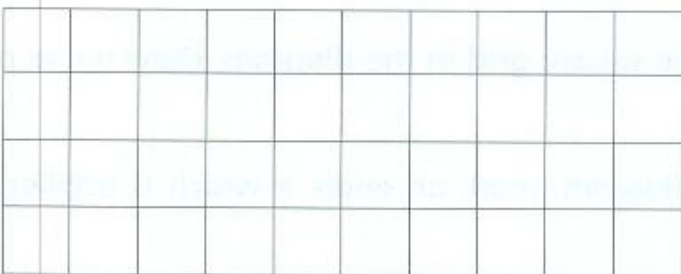
1. A figure with three sides with at least one obtuse angle.



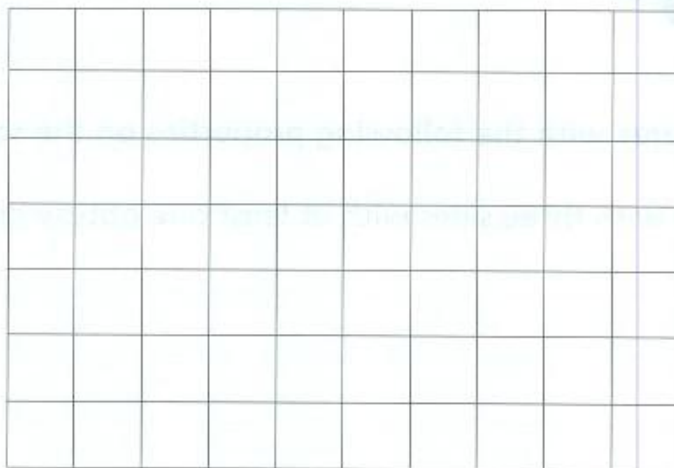
2. A figure with four sides and one acute angle.



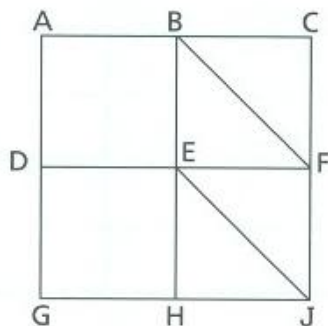
3. A figure with five sides, two right angles, one acute angle and two obtuse angles.



4. A figure with three right angles and three obtuse angles.



For questions 5 to 10, use the diagram below to complete the statements.

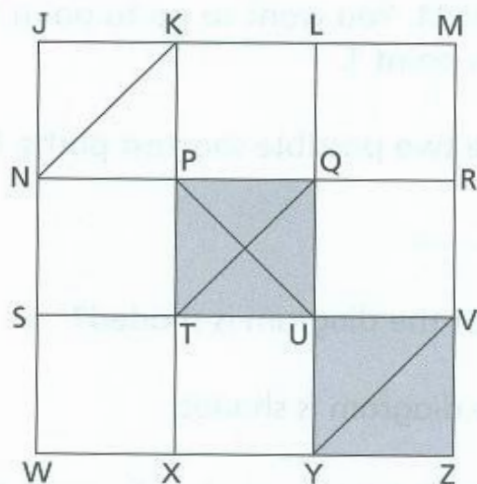


5. There are a total of \_\_\_\_\_ right angles.
6. Using the square grid in the diagram, draw a line perpendicular to BF.
7. In the diagram, mark an angle  $x$  which is smaller than a right angle.

8. Line \_\_\_\_\_ is perpendicular to line BC.
9. Line EJ is parallel to line \_\_\_\_\_.
10. You are at point D. You want to go to point J.  
The shortest path is \_\_\_\_\_. (Name the path, e.g. ABC)

### Exercise 2

For questions 1 to 10, use the diagram below to complete the statements.



1. Using the square grid in the diagram, draw a line parallel to line PU.
2. Using the square grid in the diagram, draw a line perpendicular to line KN.
3. There are \_\_\_\_\_ lines parallel to line QT.

4. Line \_\_\_\_\_ is perpendicular to line PU.
5. Within the shaded square UVZY, there are \_\_\_\_\_ possible paths from V to Y.
6. Within the shaded square PQUT, there are \_\_\_\_\_ triangles.
7. You are at point M. You want to go to point T.

Write down the two possible shortest paths: (e.g. ABCDEF)

\_\_\_\_\_ or \_\_\_\_\_

8. You are at point M. You want to go to point W but do not want to pass through point T.

Write down the two possible shortest paths: (e.g. ABCDEF)

\_\_\_\_\_ or \_\_\_\_\_

9. What fraction of the diagram is shaded?

\_\_\_\_\_ of the diagram is shaded.

10. Shade some more part(s) of the diagram to make  $\frac{1}{3}$  of the diagram shaded.