

1º E.S.O.

MATHEMATICS

ACTIVITIES III

1.-The following table gives the percentage of available medals won at home and away by host countries at Olympic Games 1960-1976 and 1988-1996. Complete it

| Country | Percentage of available medals won | | Ratio Home: Away |
|---------|------------------------------------|------|---------------------|
| | Away | Home | |
| Italy | 3.1 | 7.8 | |
| Japan | 3.7 | 5.8 | |
| Mexico | 0.2 | 1.7 | 8.6 |
| Germany | 6.7 | 6.7 | |
| Canada | 1.3 | 1.8 | |
| Korea | 1.3 | 4.5 | |
| Spain | 0.7 | 2.7 | |
| USA | 15.8 | 12 | |

2.-The following table gives the number of medals won by Spain in the latest five Olympic Games. Complete the table with the percentage.

| Olympic Games | Seoul | Barcelona | Atlanta | Sydney | Athens |
|---------------|-------|-----------|---------|--------|--------|
| Medals | 4 | 22 | 17 | 11 | 19 |
| Percentage | | | | | |

3.-The following table gives the total number of medals in the latest five Olympic Games and the number of medals won by Australia in these games:

| Olympic Games | Seoul | Barcelona | Atlanta | Sydney | Athens |
|---------------|-------|-----------|---------|--------|--------|
| Total Medals | 739 | 815 | 841 | 928 | 929 |
| Australia | 14 | 27 | 41 | 58 | 49 |
| Percentage | | | | | |

If 960 is the total number of medals in Beijing Olympic Games what will be the prediction?

4.-Sean bought a ticket to Beijing Olympic Games' opening ceremonies for €4000 and sold it later for €4500.

- a) Calculate the profit.
- b) Find the percentage profit.

5.-Laura bought a ticket for €400 and sold it at a profit of 30%. Find the selling price of the ticket.

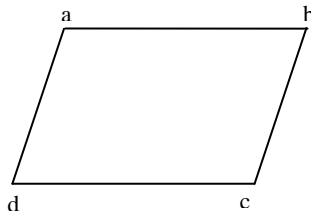
6.-In 2008 a hotel in Beijing had 1400 guests per month increased by 60% during the Olympic Games. Find the number of guests in August.

7.-A flat is bought for €212400 and sold at a loss of 4%. Find the selling price of the flat.

8.-Use a ruler to draw line segments with the following lengths:

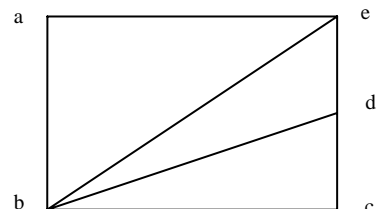
- a) 5 cm
- b) 7.2 cm
- c) 8 cm 3 mm
- d) 97 mm

9.-Using a ruler find $|ab|$ and $|bc|$ and hence find the length of the perimeter of the parallelogram.



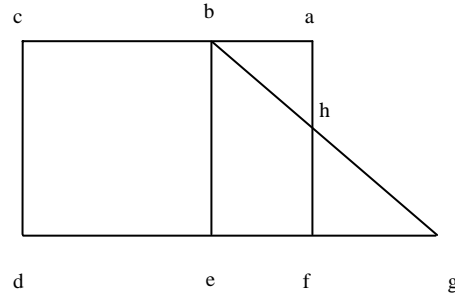
10.-In the rectangle below:

- a) Find $|ae|$.
- b) Which is bigger $|be|$ or $|bd|$?
- c) Name an angle which is the same as $\angle dcb$.
- d) Name an angle which is the same as $\angle ebc$.
- e) Measure $\angle bac$, $\angle aeb$, $\angle eba$ and find their sum.
- f) Measure $\angle bde$.



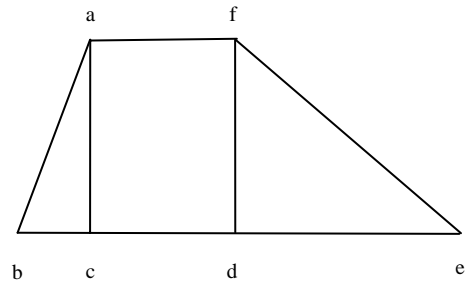
11.-In the given diagram:

- Using a ruler, find $|bg|$.
- Name a right angle.
- Name an acute angle.
- Name an obtuse angle.
- Name two perpendicular line segments.
- Measure $\angle hbe$.

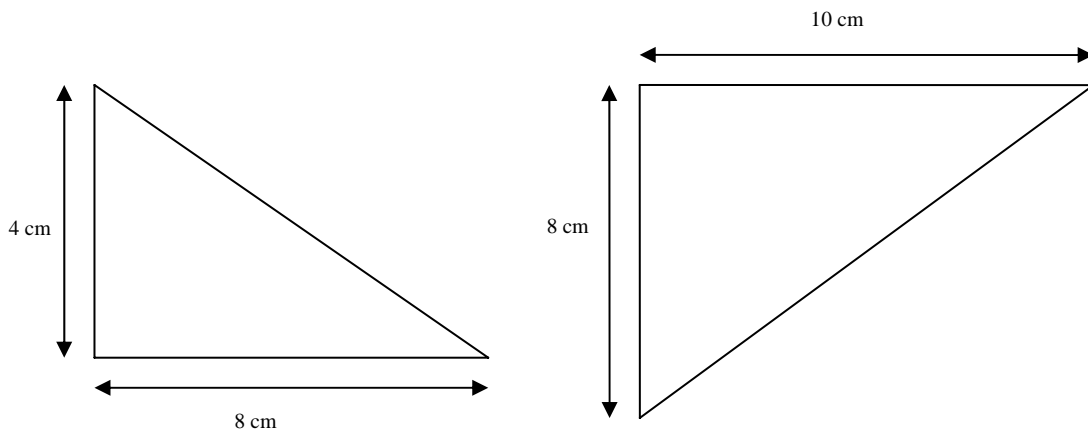


12.-In the given diagram:

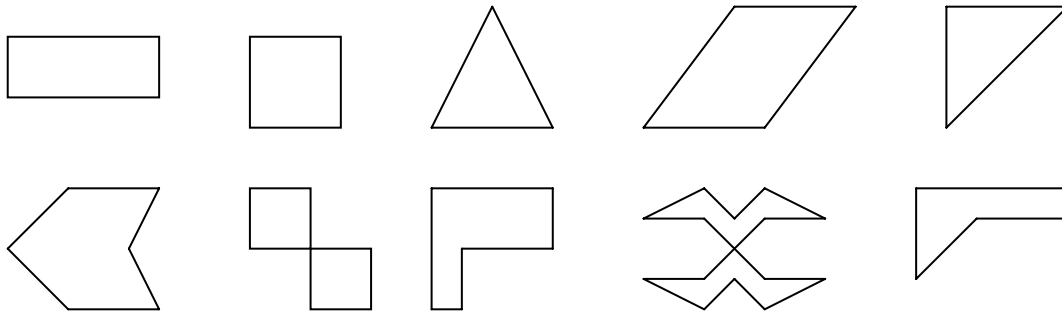
- Measure the size of $\angle abc$.
- Name and measure an obtuse angle.
- Name and measure an acute angle.
- Using a protractor, measure $\angle fed$ and $\angle def$.
- Name two perpendicular line segments.
- Name two parallel line segments.



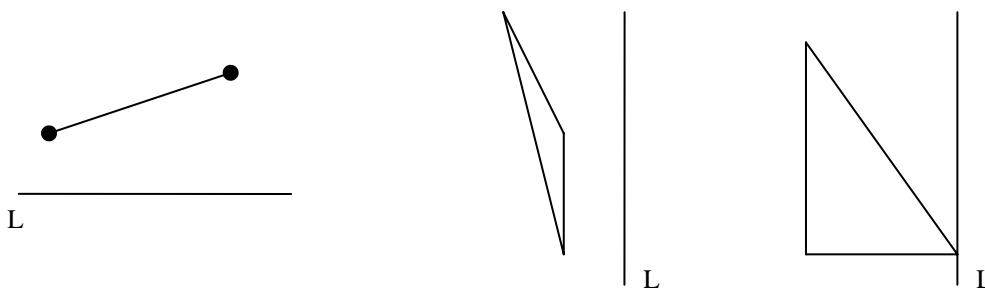
13.-Make accurate drawings of the right-angled triangles below. Measure the length of the longest sides of each triangle. Using this length to verify the theorem of Pythagoras.



14.-Find which of the following figures are symmetrical by drawing the axis of symmetry where possible. (Show all the axes of symmetry –fold lines- if there is more than one).



15.-Find the image of each of the following figures under axial symmetry in the given line L.



16.-The radius of a circle has a length of 35 cm.

- a) Find the length of its diameter.
- b) Using $\pi = \frac{22}{7}$, find the length of its circumference.

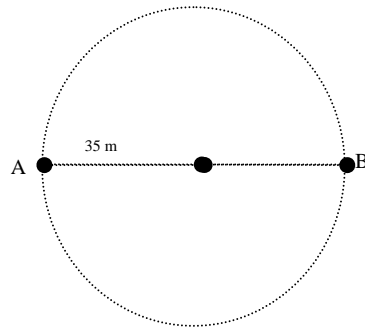
16.-The diameter of a circle has a length of 42 cm.

- a) Find the length of its radius.
- b) Using $\pi = \frac{22}{7}$, find the length of its circumference.

17.-The centre circle of a football pitch has a radius of about 7 m. Find the length of the circumference of this circle. Take $\pi = \frac{22}{7}$.

18.-The diameter of the earth is about 12,700 km. Use $\pi = 3.14$ to calculate the length of the equator.

19.-What distance is covered by a person walking around circular track from A to A and then straight across to B? Take $\pi = \frac{22}{7}$.

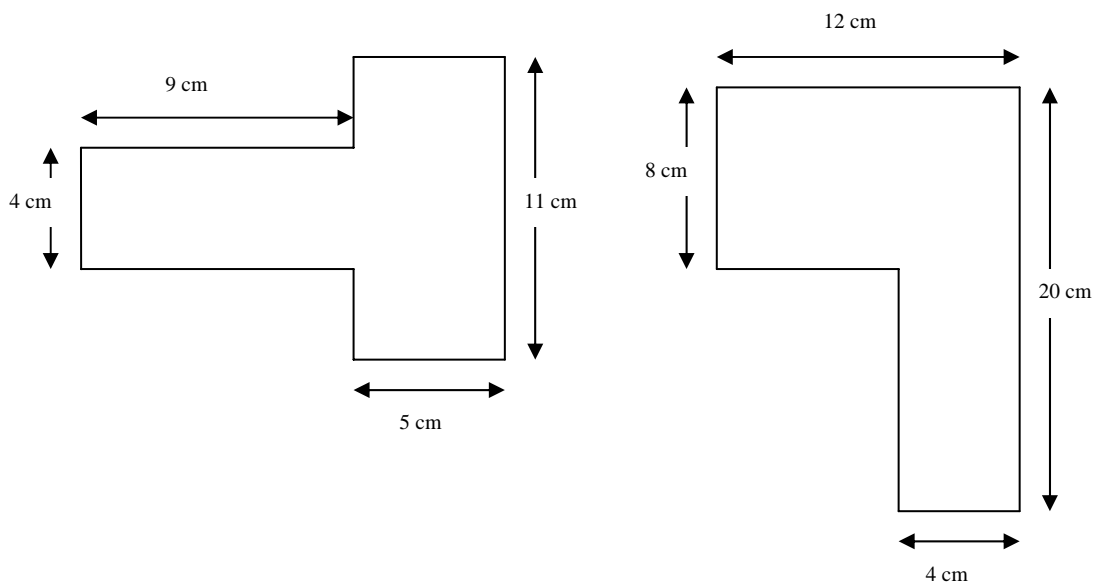


20.-A football has a circumference of 88 cm. If the ball is rolled along the ground distance of 17.6 m, how many turns does it make?

21.-A wheel has a diameter of 35 cm.

- a) Find the length of the circumference.
- b) How many turns does the wheel make when it travels a distance of 33 m?

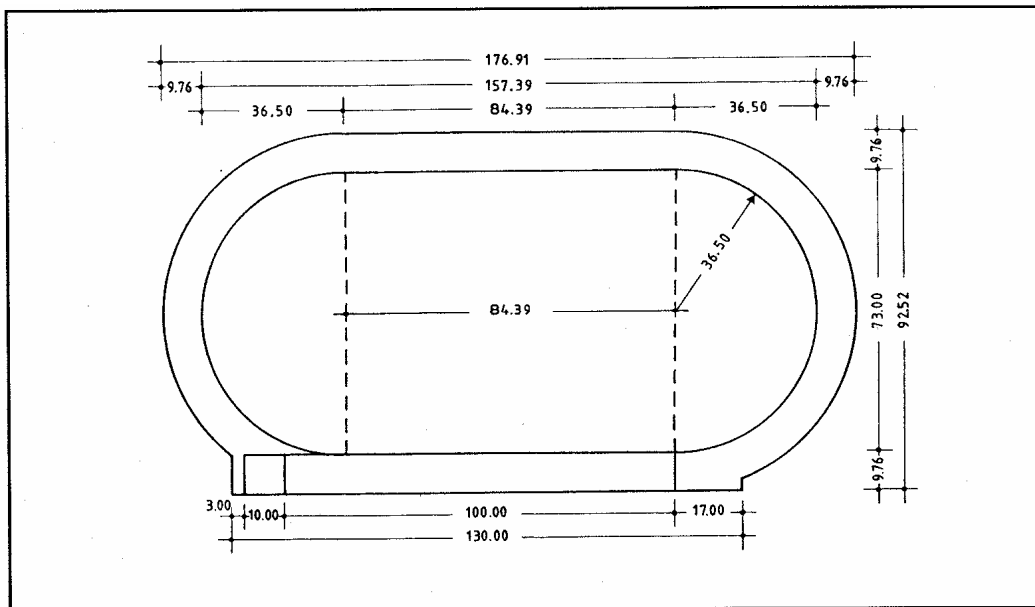
22.- A table is 120 cm long. What is the greatest amount of full turns a coin of radius 2 cm can make without falling off the table? Take $\pi = 3.14$.



23.-Copy and complete the following tables involving rectangles and squares:

| Length | Width | Area | Perimeter |
|--------|-------|----------------------|-----------|
| 14 cm | 8 cm | | |
| 10 m | | 110 m ² | |
| | 6 m | 72 cm ² | |
| 22 cm | 8 cm | | |
| 15 m | | | 60 m |
| 40 cm | | 1200 cm ² | |

24.-In a typical oval athletics track, find the area of its surface.



25.-Find the area of the border in Q24.

26.-Plot each of points shown and join the points to form a figure:

A(3,1), B(9,1), C(9,5), D(11,5), E(8,7), F(4,7), G(1,5), H(3,5)

27.-Complete the table:

| | | | | |
|--------|---|---|---|---|
| x | = | 1 | 2 | 3 |
| y = 2x | = | | | |

And plot each set of points on the same graph.

28.-Complete the table:

| | | | | | | |
|----------|---|---|---|---|---|---|
| x | = | 0 | 1 | 2 | 3 | 4 |
| y = 2x-2 | = | | | | | |

And plot each set of points on the same graph.

29.-Draw a graph of the line $y = x + 4$, when $x = 2, 3, 4$. Use your graph to find the value of y when $x = 6$.

30.-Below are the marks (out of 10) obtained by 28 students in a Maths test:

3, 7, 8, 9, 4, 5, 7, 6, 10, 1, 3, 8, 9, 10, 8, 9, 7, 8, 6, 9, 4, 5, 8, 7, 5, 6, 9, 6

Count the number of students getting each mark from 1 to 10, and then write down the mode.

31.-The number of the seeds in a simple of packets is given below:

6, 8, 10, 8, 7, 8, 11, 8, 7, 7

Find the mean and the modal number of seeds in each packet.

32.-The following table gives the number of goals scored in matches on a Saturday:

| | | | | | | | |
|-------------------|---|---|---|---|---|---|---|
| Goals scored | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Number of matches | 2 | 3 | 4 | 7 | 3 | 2 | 1 |

- In how many matches were 5 goals scored?
- In how many matches were 2 goals scored?
- What was the modal number of goals scored?

d) What was the total number of matches played on Saturday?

33.-A survey was taken of the number of children in each house on a street.

4, 0, 3, 2, 1, 2, 3, 2, 1, 1, 4, 3, 5, 3, 2, 6, 1, 4, 2, 2, 4, 5, 5, 4

| | | | | | | | |
|--------------------|---|---|---|---|---|---|---|
| Number of children | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Frequency | | | | | | | |

Copy and complete the table above.

Find:

- The number of houses with 4 children.
- The number of houses with 2 or less children in them.
- The number of houses in the street.
- The modal number of children in a house.

34.-This table gives the number of goals scored in 20 matches:

| | | | | |
|-------------------|---|---|---|---|
| Goals scored | 1 | 2 | 3 | 4 |
| Number of matches | 1 | 4 | 9 | 6 |

- In how many matches were 2 goals only scored?.
- What is the modal number of goals scored?.
- Find the total number of goals scored.
- Find the average number of goals scored per game.

35.-The table shows the number of children between 2 and 7 years of age living on a road.

| | | | | | | |
|--------------------|---|---|---|----|---|---|
| Age | 2 | 3 | 4 | 5 | 6 | 7 |
| Number of children | 1 | 3 | 5 | 10 | 8 | 3 |

- Find the modal age of the children living on the road?
- How many children were 5 years of age or more?

- c) How many children were 3 years of age or less?
- d) How many children were in the survey?
- e) Find the mean age of the children living on the road.

36.-The following table gives the number of medals won by each country in Athens:

| Country | Gold | Silver | Bronze |
|-----------|------|--------|--------|
| USA | 36 | 39 | 27 |
| China | 32 | 17 | 14 |
| Russia | 27 | 27 | 38 |
| Australia | 17 | 16 | 16 |
| Japan | 16 | 9 | 12 |

Draw a bar chart to show this information.

37.-The following table gives the number of medals won by Spain in the last five Olympic Games:

| City | Gold | Silver | Bronze |
|-----------|------|--------|--------|
| Seoul | 1 | 1 | 2 |
| Barcelona | 13 | 7 | 2 |
| Atlanta | 5 | 6 | 6 |
| Sidney | 3 | 3 | 5 |
| Athens | 3 | 11 | 5 |

Draw a bar chart to show this information.

38.-The following table shows how a class of 32 students generally travel to school:

| Way of travelling | Bus | Car | Train | Bicycle | Walk |
|-------------------|-----|-----|-------|---------|------|
| Number of pupils | 10 | 6 | 2 | 6 | 8 |

Draw a bar chart to show this information.

39.-60 transition-year students who participated in the events of an adventure school were asked which event they preferred. Their answers are tabulated below. Draw a pie-chart to represent the results.

| | | |
|---------------|--------------|----------|
| Rock climbing | Wind surfing | Canoeing |
| 10 | 35 | 15 |

40.-Laura is training for the Boston Marathon. The following table gives the training program:

| | | | | | | | |
|-------------|----|----|----|----|----|----|----|
| Week | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Total Miles | 70 | 80 | 90 | 60 | 80 | 24 | 12 |

Draw a trend graph to show this information.