

Year 8 Term 2 Homework

Student Name: _____	Grade: _____
Date: _____	Score: _____

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10 Year 8 Term 2 Week 10 Homework

10.1 Geometric Constructions

10.1.1 Constructing regular polygons in a circle

- A regular polygon has all its sides equal and all its angles equal.
- Regular polygons are named according to the number of sides.
- Polygon names:

Polygon Name	Edges
henagon (or monogon)	1
digon	2
triangle (or trigon)	3
quadrilateral (or tetragon)	4
pentagon	5
hexagon	6
heptagon	7
octagon	8
enneagon (or nonagon)	9
decagon	10
hendecagon	11
dodecagon	12
tridecagon	13
tetradecagon	14
Pentadecagon (or quindecagon or pentakaidecagon)	15

Exercise 10.1.1 Draw a circle with centre **O** and a radius **OA** of 3 cm.

1. Use a protractor to construct OB and OC so that $\angle AOB = \angle AOC = 120^\circ$.
 2. Joint the points A , B and C to form $\triangle ABC$.

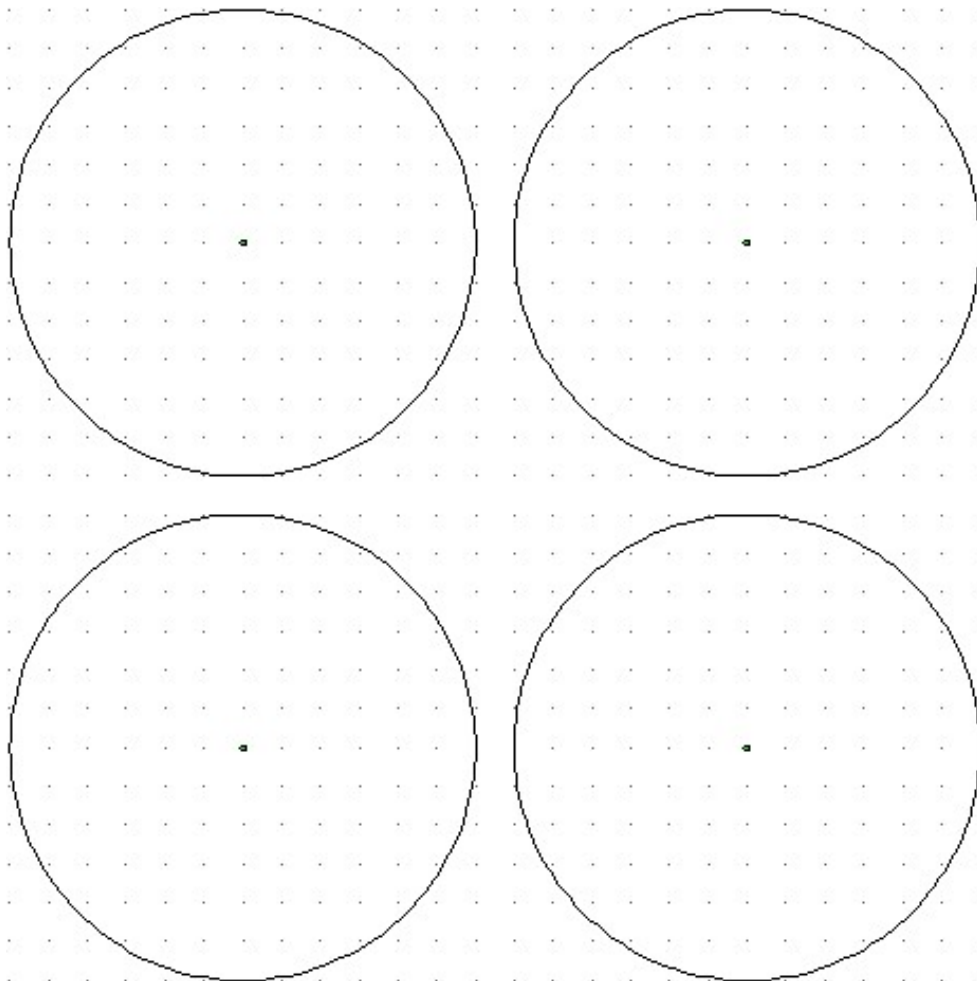
 3. Measure the side lengths of $\triangle ABC$. What kind of triangle is it?
-

Exercise 10.1.2

1. Draw a circle of radius of 3 cm with centre O , without changing the radius of your compass, mark 6 equally spaced points around the circle.
2. Joint the points to form a regular hexagon.
3. Do the axes of symmetry pass through centre O ?

Exercise 10.1.3 Construct each of the following regular polygon in a circle of radius of 3 cm.

- (1) octagon (2) nonagon (3) decagon (4) dodecagon



10.1.2 Constructing triangles**Exercise 10.1.4 Construct an equilateral triangle with sides:**

1. *3 cm*

2. *5 cm*

Exercise 10.1.5 Construct isosceles triangles:

1. *with a base of 4 cm and its equal sides of 3 cm.*

2. *with a base of 5 cm and its equal sides of 4 cm.*

Exercise 10.1.6 Construct these scalene triangles:

1. with sides 3 cm, 5 cm and 7 cm.

2. with sides 3 cm, 4 cm and 5 cm.

3. with sides 5 cm, 3 cm and 6 cm.

Exercise 10.1.7

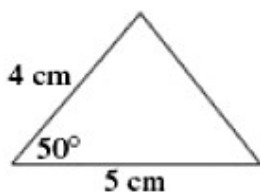
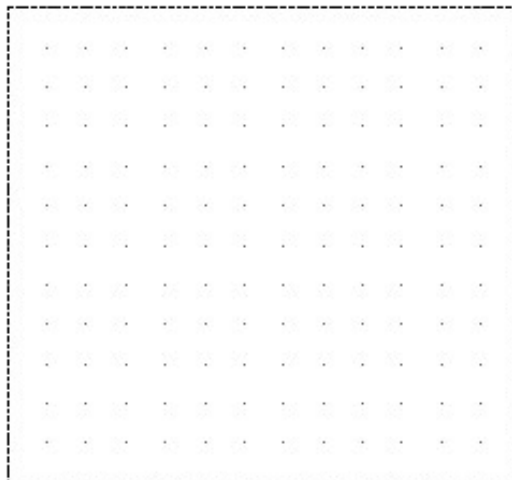
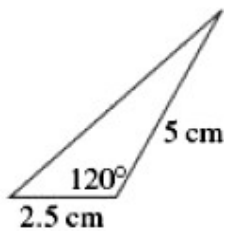
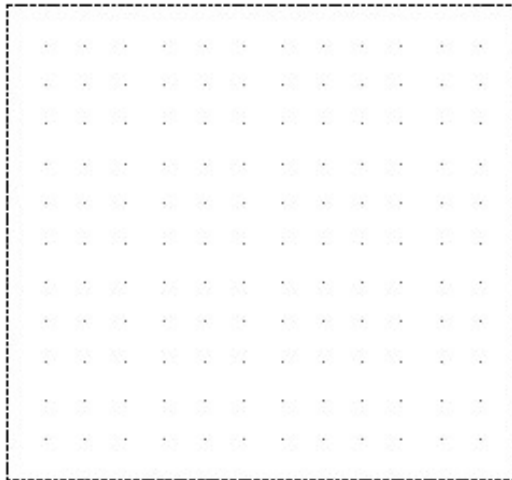
1. Construct a triangle with sides 3 cm, 3.5 cm and 4 cm.

2. measure the 3 angles. _____

3. Is the largest angle opposite the longest side? _____

4. Is the smallest angle opposite the shortest side? _____

Exercise 10.1.10 Construct full size drawing of these triangles, using a ruler and protractor.



Exercise 10.1.11 Further applications

1. Construct $\triangle ABC$ with sides 3 cm, 4, cm and 5 cm. What type of triangle is this?

(a) Join A to D , the midpoint of BC .

(b) Measure AD , BD and CD . What property do you notice?

(c) Would this property also hold for a triangle with sides 9 cm, 12 cm and 15 cm?

2. Show that it is not possible to construct triangle with sides:

(a) 3 cm, 4 cm and 8 cm.

(b) 4 cm, 4 cm and 9 cm.

(c) How would you determine whether the construction of a certain triangle was possible given the length of its sides?

10.1.3 Problem solving**Exercise 10.1.12**

1. *Yesterday Roy and Ken each had an average of 44 marbles. Each of them bought 22 more marbles today. Now Roy has 20% more marbles than Ken. Find the ratio of Roy's marbles to the number of marbles Ken had yesterday.*

2. *The length of a rectangle is 120% of its breadth. The perimeter of the rectangle is 88 cm. Find the area of the rectangle.*

3. *The breadth of a rectangle is 20% of its perimeter. If the length of the rectangle is 24 cm longer than its breadth, find the area of the rectangle.*

4. *The ratio of the number of girls to the number of boys at a party was 7:3. Each girl was given 5 sweets and each boy was given 3 sweets. A total of 352 sweets were given to these children. How many sweets were given to the boys?*

10.2 Miscellaneous Exercises

Exercise 10.2.1

1. Which sampling method would be appropriate for each situation:

(a) A school principal wants to take a sample of students in her school to find out whether they are satisfied with the level of library resource.

(b) A farmer needs to know whether a disease has infected any of the horses, cattle and sheep on his property.

(c) A sample of plates produced in factory is to be inspected to check the quality of the plate's shape and colour.

2. A bag contains 81 black marbles and a number of white marbles. Graham chose 30 marbles from the bag without replacement. 12 were white. How many marbles were originally in the bag?

3. Find the mean of the given data set, correct to 1 decimal place.

Score	20	21	22	23	24
Frequency	52	38	90	46	61

4. How many 3 digit numbers can be formed from the first five numbers 1 to 5 if each is used only once?

5. In how many ways can 5 boys line up?
