

GR10 ESSENTIAL MATH
UNIT D – GEOMETRY WORKBOOK

Name: _____

Date: _____

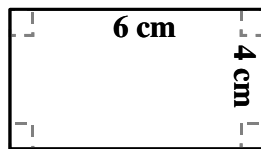
Instead of several different assignments, this is a single workbook you can do. **Answers at the back!**

Use your formula Sheet in your Notes or as issued. Use a calculator. Round decimals to nearest one hundredth [1/100 th or 0.01] when appropriate. Use an accurate value for π . Showing work helps you and others figure out what you are doing! Dashed 'witness' lines are not part of the figure.

*** Note: Diagrams are **not** to scale, so don't measure them with a ruler. Use the given dimensions regardless of how rogue they may look***

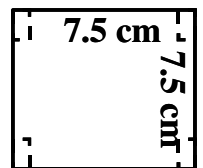
1. Find the perimeter

a. Rectangle:



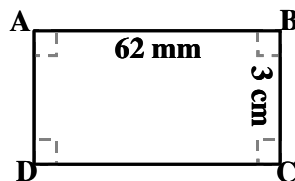
Example: $P = 2 * 6 + 2 * 4 = 20$ cm

b. Square

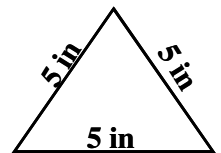


P = _____

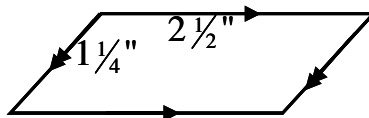
c. Rectangle ABCD



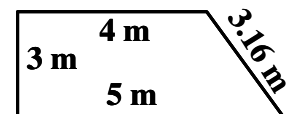
d. Triangle



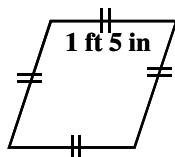
e. Parallelogram



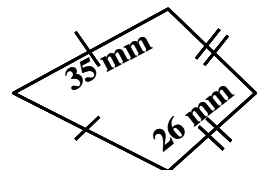
f. Trapezoid



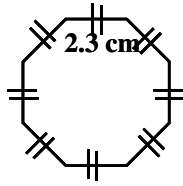
g. Rhombus



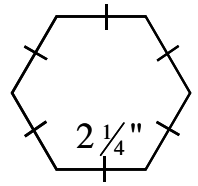
h. Kite



i. Regular Octagon



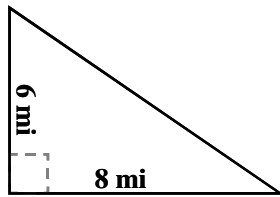
j. Regular Hexagon



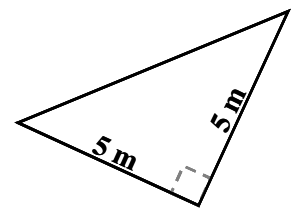
k. You invent a couple:

2. **Find the Perimeter** (requires Pythagoras)

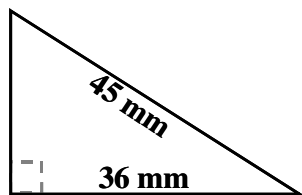
a. Triangle (two legs given)



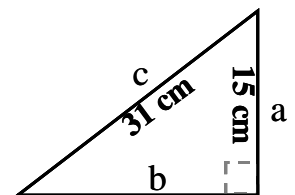
b. Triangle (two legs given)



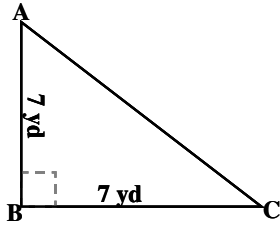
c. Triangle (hypotenuse given)



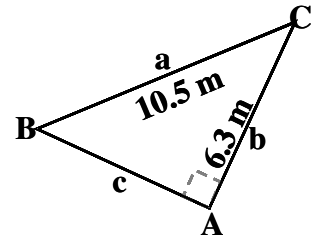
d. Triangle (hypotenuse given).



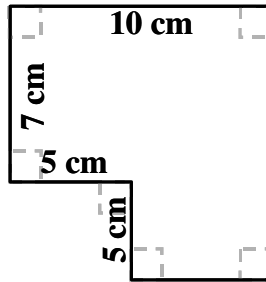
e. Triangle (legs given).



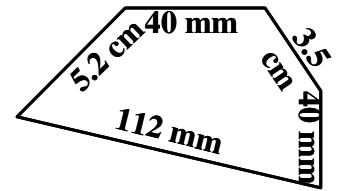
f. Triangle (hypotenuse given)



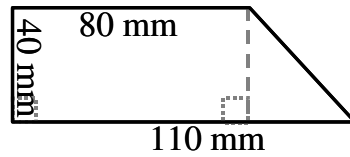
g. Irregular Rectilinear Shape



h. Irregular Polygon Shape



i. Trapezoid

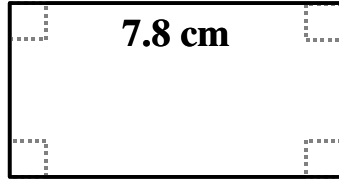


j. Trapezoid

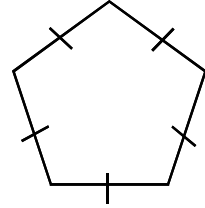


3. Name the shape and mark the value of each of the side(s) given the Perimeter

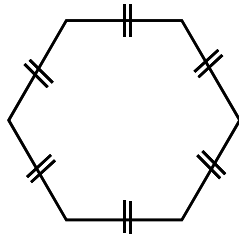
a. Perimeter = **20.2 cm**



b. Perimeter = **26 m**



c. Perimeter = **18.9 units**

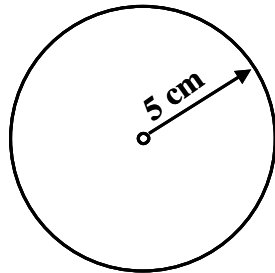


d. Perimeter = **48 units**

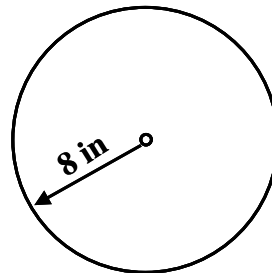


4. Find the circumference

a. Circle

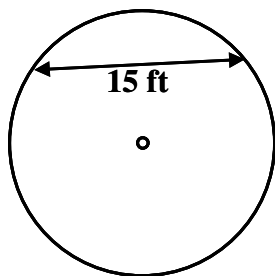


b. circle (to nearest $\frac{1}{8}^{\text{th}}$ inch)

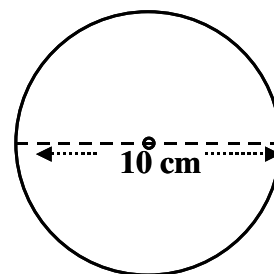
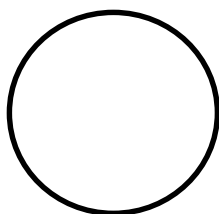


Mr T

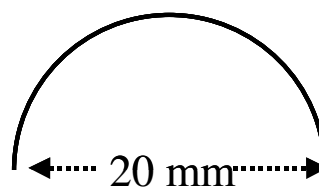
c. circle (tricky!)



d. circle

e. Circle of diameter **15.4** miles

f. length of the arc of the semi-circle



5. Find the Radius and Diameter given the Circumference

a. Circle of circumference 62.832 km.

Radius = _____

Diameter = _____

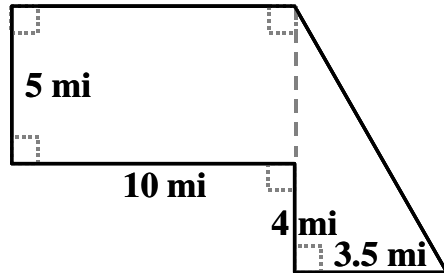
b. circle of circumference 10 ft 3 inches

Radius = _____ (to nearest 1/4th inch)Diameter = _____ (to nearest 1/4th inch)

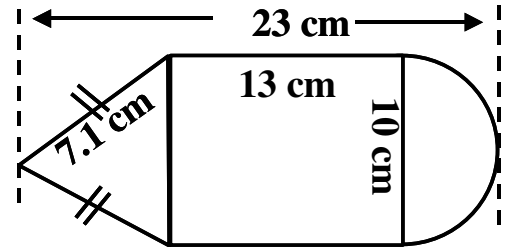
Irregular Shapes

6. Find the perimeter:

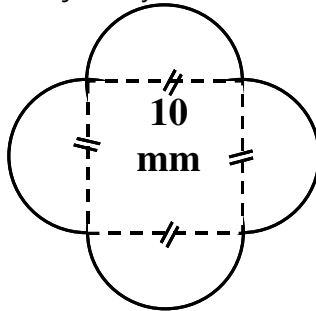
a. This territory:



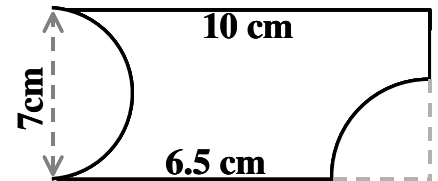
b. Stubby pencil shape:



c. This little flat piece of jewelry:



d. This gasket for an engine:

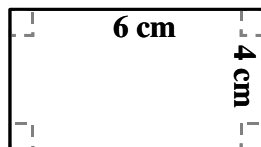


A bit of thinking on this one!

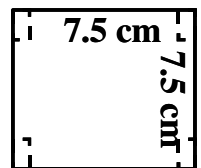
FIND THE AREA

7. Find the area

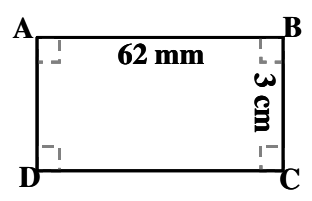
a. Rectangle:



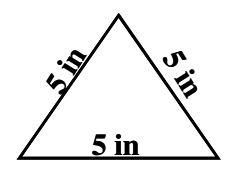
b. Square:



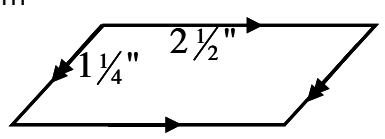
c. Rectangle ABCD



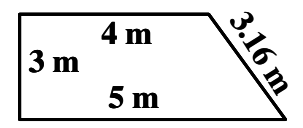
d. Triangle



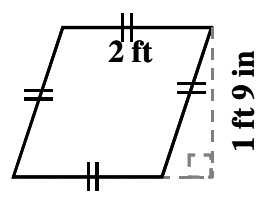
e. Parallelogram



f. Trapezoid



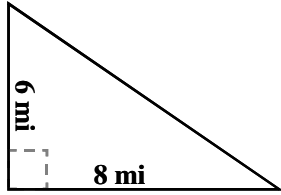
g. Rhombus



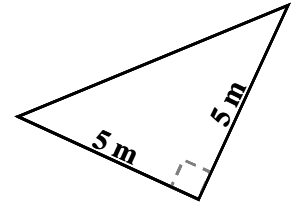
k. You invent a couple:

8. Find the Area

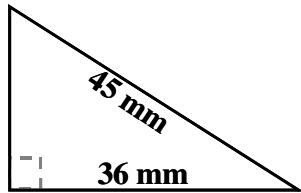
a. Triangle



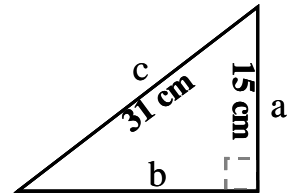
b. Triangle



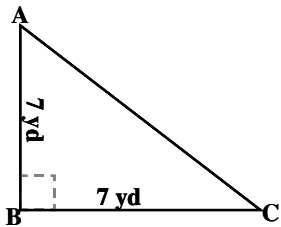
c. Triangle (hypotenuse given)



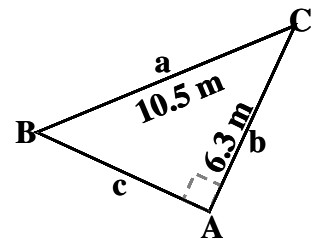
d. Triangle (hypotenuse given).



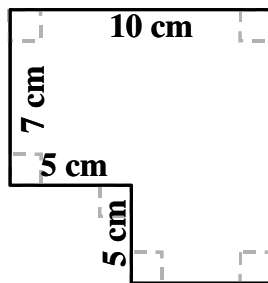
e. Triangle (legs given).



f. Triangle (hypotenuse given)



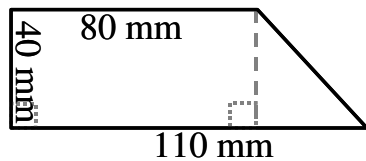
g. Irregular Rectilinear Shape



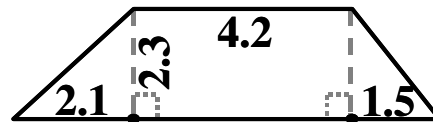
h. Irregular Rectilinear Shape. You do one!

Mr T

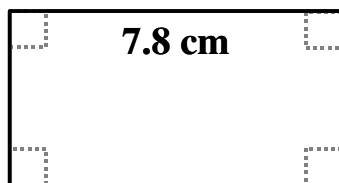
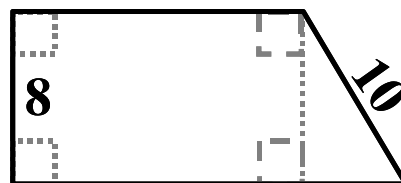
i. Trapezoid



j. Trapezoid

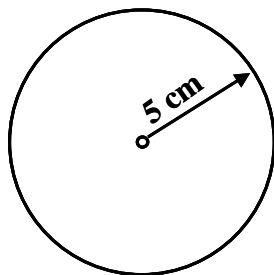


9. Name the shape and mark the value of each of the side(s) given the Area

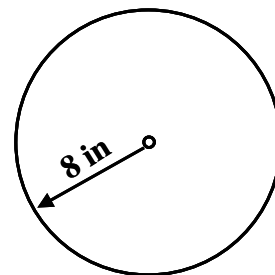
a. Area = 46.8 cm^2 d. Area = 144 unit^2 

10. Find the area of the circles

a. Circle

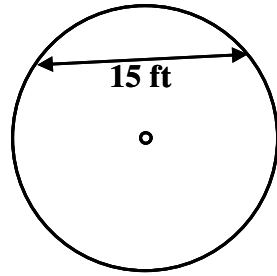


b. circle

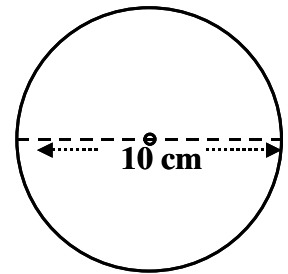


MRT

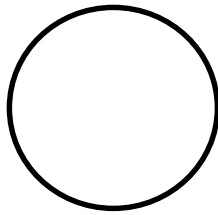
c. circle



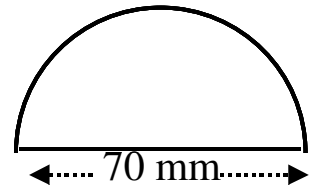
d. circle



e. Circle of diameter 12.4 miles



f. area of semi-circle



11. Find the Radius and Diameter given the Area

a. Circle of area 100 km^2 .

Radius = _____

Diameter = _____

b. circle of area 10 ft^2

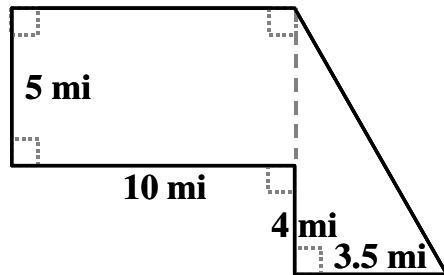
Radius = _____ (nearest inch if you can)

Diameter = _____ (nearest inch if you can)

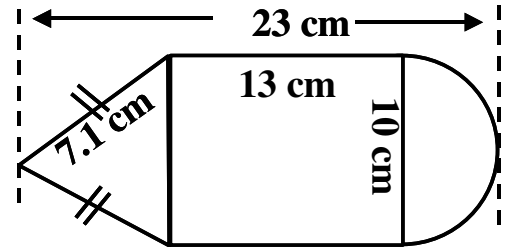
Irregular Shapes

12. Find the area:

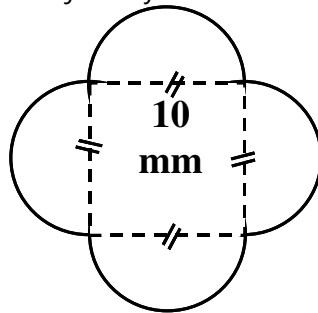
a. This territory:



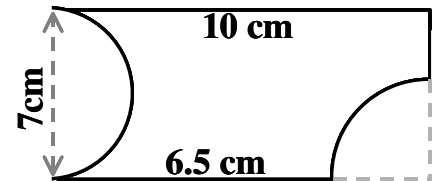
b. Stubby pencil shape:



c. This little flat piece of jewelry:



d. This gasket for an engine:



CONVERTING MEASURES OF AREA

13a. If you double all the lengths of the edges of a shape then you _____ the perimeter.

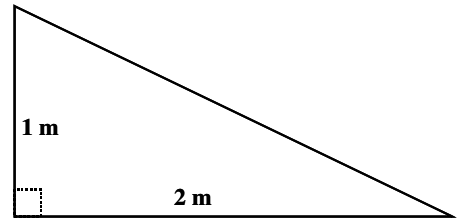
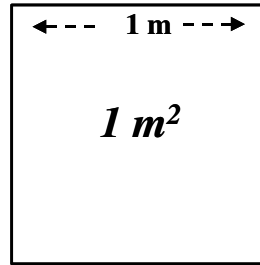
13b. If you double all the lengths of the edges of a shape then you _____ the area.

14. The square at right has an area of 1 square metre (1 m^2). Convert the lengths to cm, how many square cm (cm^2) are in the square.

a. Area = _____ cm^2 .

The triangle at the right has a measure of 1 square meter (1 m^2). Convert the lengths to cm and calculate the area in cm^2 .

b. Area = _____ cm^2



15. **Convert the following areas:**

a. 10 m^2 into cm^2 is

b. $144 \text{ sq inches (in}^2\text{)} =$ _____ $\text{sq ft (ft}^2\text{)}$

c. $30 \text{ m}^2 =$ _____ ft^2

d. $300 \text{ ft}^2 =$ _____ m^2

e. $600 \text{ square miles (mi}^2\text{)} =$ _____ km^2 f. $50 \text{ km}^2 =$ _____ m^2

g. How many square miles is the province of Manitoba.

_____ mi².



h. Canada has a surface *land area* of 3.8 million square miles. How many square km is this?





**ANSWERS TO
UNIT D – GEOMETRY
GEOMETRY WORKBOOK**

PERIMETER

1a. 20 cm	1b. 30 cm	1c. 18.4 cm or 184 mm	1d. 15 in
1e. $7\frac{1}{2}$ in	1f. 15.16 m	1g. 5 ft 8 in (5'8")	1h. 122 mm
1i. 18.4 cm	1j. $13\frac{1}{2}$ "		
2a. 24 miles (mi)	2b. 17.07 m	2c. 108 mm	2d. 73.13 cm
2e. 23.90 yd	2f. 25.2 m	2g. 44 cm	2h. 279 mm or 27.9 cm
2i. 280 mm	2j. 17.86 units		
3. Rectangle 2.3, 7.8, 2.3 cm	3b. Regular Pentagon 5.2 m each	3c. Regular Hexagon 3.15 units each	3d. Trapezoid 12 top, 18 base
4a. 31.42 cm	4b. 50.27 in (so $50\frac{1}{4}$ ")	4c. No solution	4d. 31.42 cm
4e. 48.38 mi	4f. 31.42 mm		
5a. 10km, 20 km	5b. $1\frac{5}{8}$ " , $3\frac{1}{4}$ "		
6a. 42.16 mi	6b. 55.91 cm	6c. 62.83 mm	6d. 36.49 cm

AREA

7a. 24 cm^2	7b. 56.25 cm^2	7c. 1860 mm^2 or 18.6 cm^2	7d. 10.83 in^2 (height was 4.33 in)
7e. No solution, height unknown	7f. 13.5 m^2	7g. 3.5 ft^2 or $3\frac{1}{2}\text{ ft}^2$	
8a. 24 mi^2	8b. 12.5 m^2 '3.16' is UFI (useless info)	8c. 486 mm^2	8d. 203.47 cm^2
8e. 24.5 yd^2	8f. 26.46 m^2	8g. 95 cm^2	
8i. 3800 mm^2 or 38 cm^2	8j. 13.8 units^2		
9a. 6, 7.8, 6 cm.	9b. top 15, bottom 21		

10a. 78.54 cm^2 10b. 201.06 in^2

10c. No solution

10d. 78.54 cm^2 10e. 120.76 mi^2 10f. 1924.22 mm^2 11a. $r = 5.64; d = 11.28$ 11b. $r = 1.78 \quad d = 3.57$ 12a. 65.75 mi^2 12b. 233.54 cm^2 12c. 257.08 mm^2 12d. 41.4 cm^2

13a. double

13b. quadruple

14a. $10,000 \text{ cm}^2$ 14b. $10,000 \text{ cm}^2$ 15a. $100,000 \text{ cm}^2$ 15b. 1 ft^2 15c. 322.75 ft^2 15d. 27.89 m^2 15e. 1554 km^2 15f. 50 million m^2 15g. 250, 139 mi^2 15h. 9,841,042 km^2