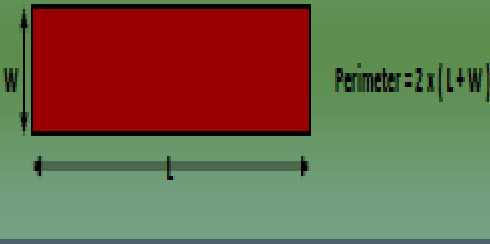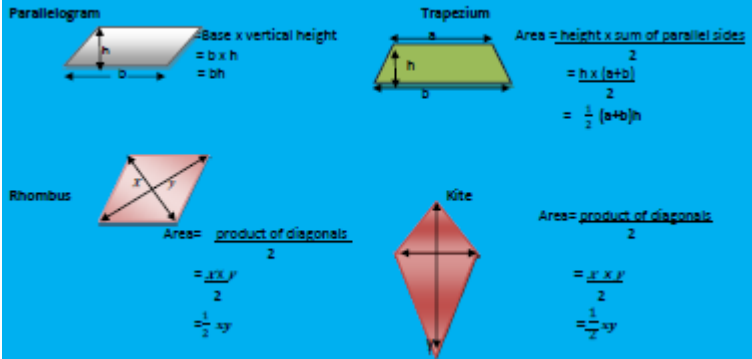| **SUBJECT: MATHS**	**WORKSHEET: 01/2021**	**YEAR: 8**
STRAND	MEASUREMENT	
SUB- STRAND	LENGTH/ AREA	
CONTENT LEARNING OUTCOME	Select and use appropriate formulas to calculate length, perimeter, area of 2D, 3D and composite Shapes	

PERIMETER

- PERIMETERS: is the sum of all the distances around shape.

Perimeter of a rectangle is calculated by:

Perimeter = $2 \times (L + W)$

AREA

Parallelogram = Base x vertical height = b x h = bh

Trapezium Area = height x sum of parallel sides = $\frac{h \times (a+b)}{2}$ = $\frac{1}{2}(a+b)h$

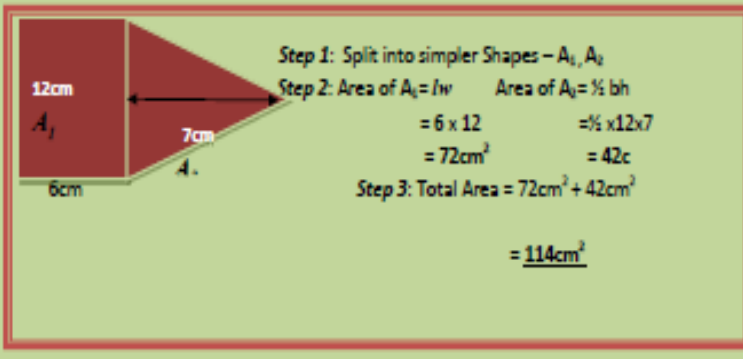**Rhombus** Area= $\frac{product\ of\ diagonals}{2}$ = $\frac{x \times y}{2}$ = $\frac{1}{2}xy$

Kite Area= $\frac{product\ of\ diagonals}{2}$ = $\frac{x \times y}{2}$ = $\frac{1}{2}xy$

NOTE: *Diagonals are the two lines which join the opposite corners. With the rhombus and the kite: x and y represents the two diagonals.*
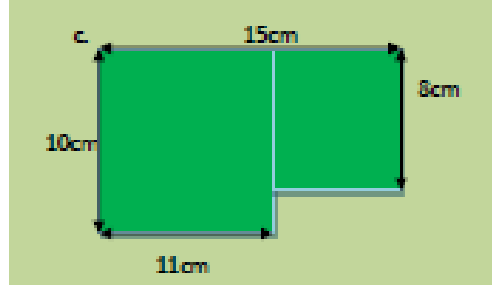
Composite Areas

- Composite areas are calculated for complicated shapes.
- The areas of complicated shapes can be found by splitting/breaking the shape up into simpler shapes (shapes for which it is easy to find the area).

STEP 1: Split up the composite shape into 2 or simpler shapes.

STEP 2: Find the area of the simpler shape.

STEP 3: Add up the areas to give the area of the composite area.

Step 1: Split into simpler Shapes – A_1, A_2
Step 2: Area of $A_1 = lw$ Area of $A_2 = \frac{1}{2}bh$
= 6 x 12   = ½ x12x7
= 72cm²   = 42c
Step 3: Total Area = 72cm² + 42cm²
= 114cm²

$A_1 = l \times w$
= 11 x 10
= **110 cm²**

$A_2 = l \times w$
= 8 x 4
= **32 cm²**

Total Area = $A_1 + A_2$
= 110 cm² + 32cm²
= **142 cm²**

AREA OF A CIRCLE

CIRCLE

Radius r
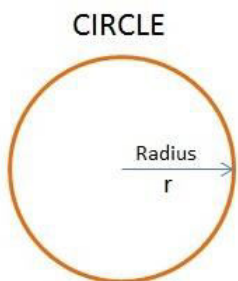
Area of circle = πr^2

Use $\pi = \frac{22}{7}$

r = 7cm

$A = \pi r^2$
= $\frac{22}{7} \times \frac{7cm}{1} \times \frac{7cm}{1}$
= 22 × 1 cm × 7cm
= **154 cm²**

$C = 2 \times \pi \times r$
= $\frac{2}{1} \times \frac{22}{7} \times \frac{7cm}{1}$
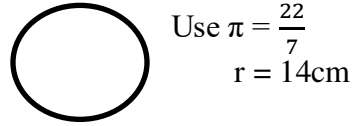= **44cm**

Circumference- is the length of the boundary of the circle

ACTIVITY

1. Find the **Perimeter** of the Shape given below:
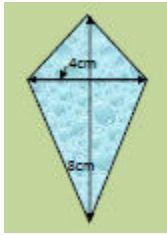
4cm

5cm
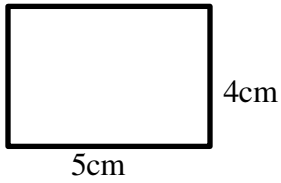
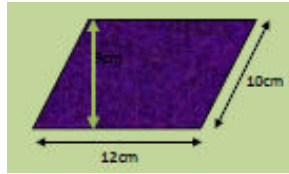2. Find the **Circumference** of the Circle given below:

Use $\pi = \frac{22}{7}$

r = 14cm

3. Find the **Area** of the given shapes below:

a)

x = 4cm
y = 8 cm

b)   b = 12 cm   h = 9 cm

10cm

12cm

c)
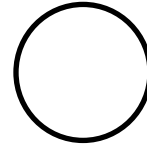
Use $\pi = \frac{22}{7}$

r = 14cm

4. Find the Area of these **Composite Shapes**.

a)

4m

10m

3m

12m

b)

14m

Vegetables

12 m

Rice

10m

15m

Sugar cane

25m
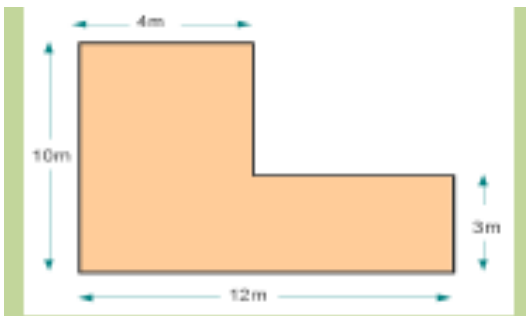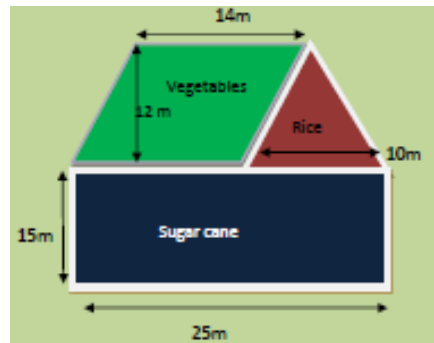
5. Find the Area of the **Shaded Region**.

a

26cm

18cm

5cm

12cm