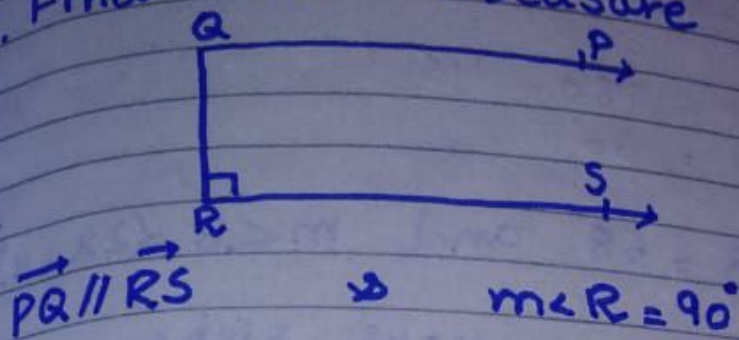


Exercise 7.1

(Solution)

1. Find the measure of $\angle PQR$



QR is Transversal

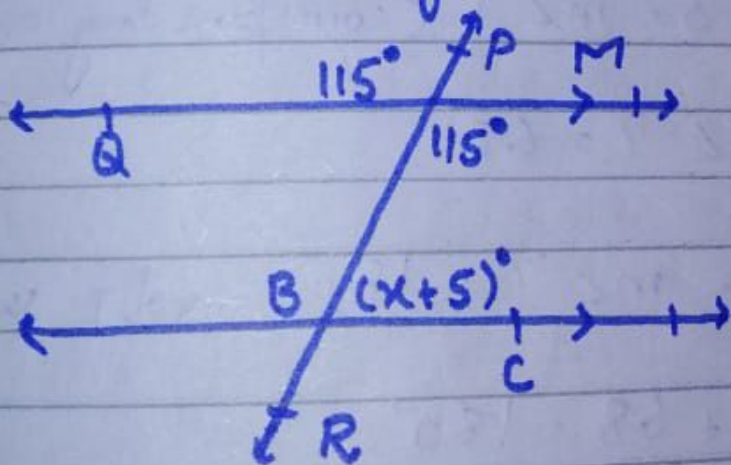
$m\angle Q + m\angle R = 180^\circ$ (angles on the same side of \vec{QR})

$$m\angle Q + 90^\circ = 180^\circ$$

$$m\angle Q = 180^\circ - 90^\circ$$

$$m\angle PQR = 90^\circ$$

2. Find Value of x



$$m\angle PAQ = 115^\circ$$

$m\angle MAB = m\angle PAQ$ (oppo angles)

$$m\angle MAB = 115^\circ$$

$$m\angle MAB + m\angle ABC = 180^\circ$$

(Interior angles on the same side)

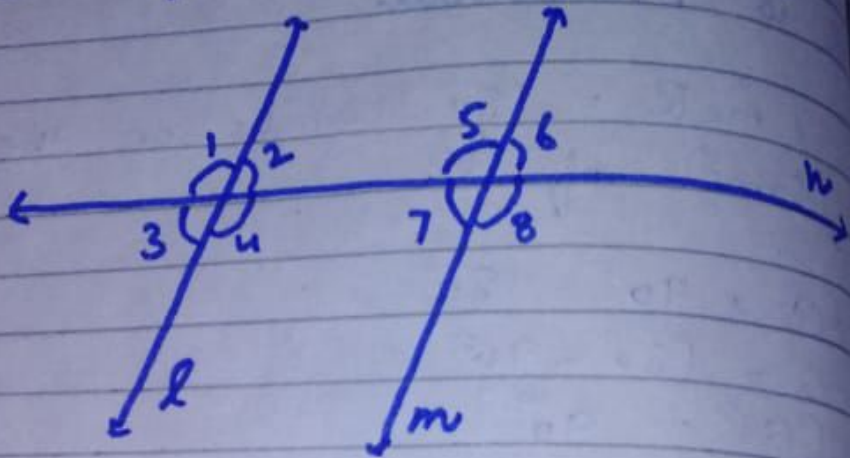
$$115^\circ + x + 5 = 180^\circ$$

$$x = 180 - 115 - 5$$

$$x = 60^\circ$$

3). If $m\angle 3 = 68^\circ$ and $m\angle 8 = x$

$\angle x = ?$ Show your steps



$l \parallel m$ and n is Transversal
 $m\angle 3 = m\angle 7$ (corresponding angles)

$$m\angle 7 = 68^\circ$$

or

$$m\angle 8 + m\angle 7 = 180^\circ \text{ adj. sup.}$$

$$2x + 4 + 68 = 180^\circ$$

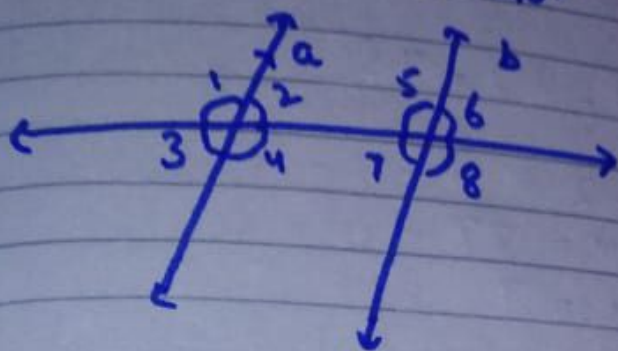
$$2x = 180^\circ - 68 - 4$$

$$2x = 108$$

$$x = 54$$

If $m\angle 1 = 105^\circ$, find $m\angle 4$, $m\angle 5$
and $m\angle 8$. Indicate which property
is used.

$$m\angle 1 = 105^\circ \text{ (given)}$$



$$a \parallel b = \text{given}$$

$$m\angle 4 = m\angle 1 \text{ (ver. opp. angles)}$$

$$m\angle 4 = 105^\circ \text{ (ii) given}$$

$$m\angle 8 = m\angle 4 \text{ (corresponding angles)}$$

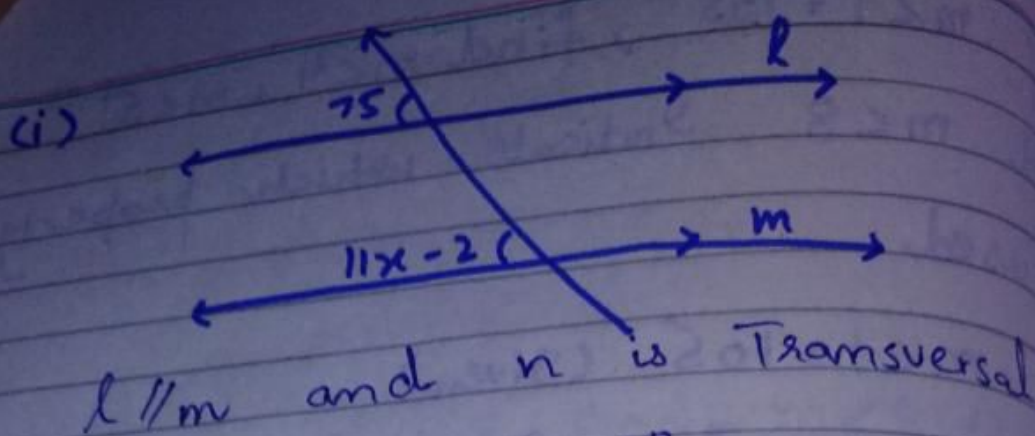
$$m\angle 8 = 105^\circ \text{ (iii)}$$

$$m\angle 5 = m\angle 8 \text{ (ver. opp. angles)}$$

$$m\angle 5 = 105^\circ \text{ from (iii)}$$

$$\text{Thus } m\angle 4 = m\angle 5 = m\angle 8 = 105^\circ$$

Solve for x . Also find
angles



$$m \angle (11x - 2) = 75^\circ$$

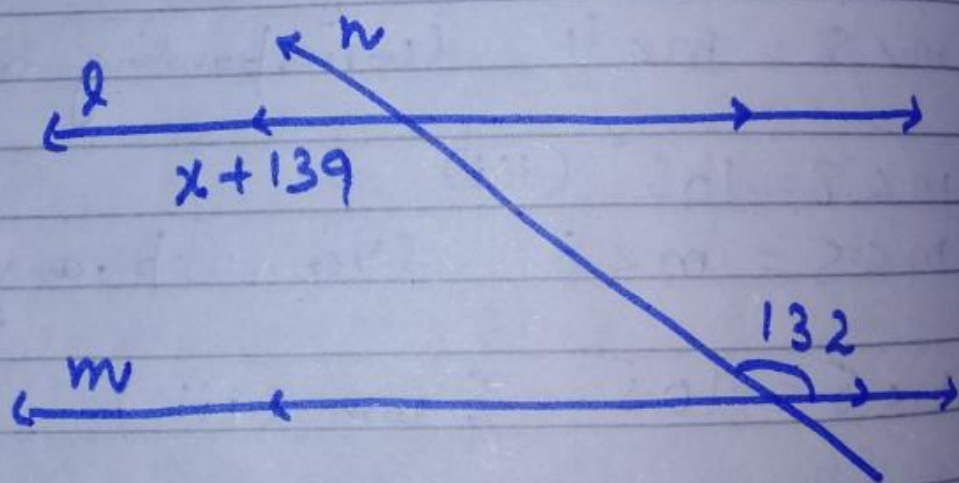
$$11x - 2 = 75$$

$$11x = 77$$

$$x = 7$$

$$11x - 2 = 11(7) - 2 = 77 - 2 = 75^\circ$$

(ii) $l \parallel m$ and n is Transversal



$$x + 139 = 132 \quad (\text{alter, Interior})$$

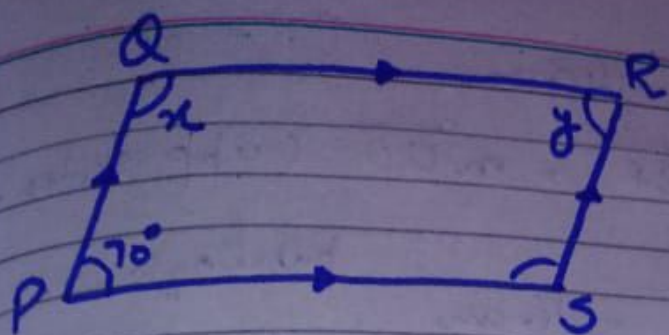
$$x = 132 - 139$$

$$x = -7$$

$$x + 139$$

$$= -7 + 139$$

$$= 132^\circ$$



PQRS is a parallelogram

$$m\angle x + 70^\circ = 180^\circ \text{ (int. angles)}$$

on the same side \overline{PQ}

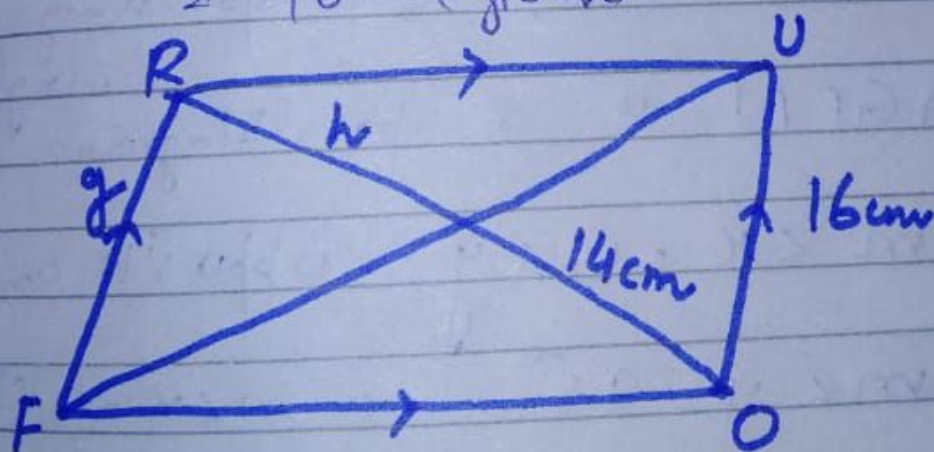
$$m\angle x = 180^\circ - 70^\circ$$

$$m\angle x = 110^\circ$$

and $m\angle y = m\angle P$ (opposite angle
PQRS)

$$= 70^\circ \text{ (given)}$$

(iii)

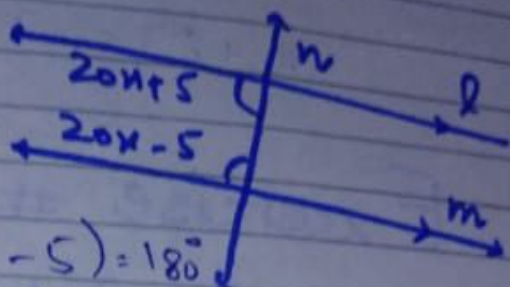


RF OU is a parallelogram

$m\overline{MR} = m\overline{MO}$ (Diagonals bisect
each other)

$$m\overline{MR} = 14 \text{ cm}$$

(iii) Solve for x . Also find angles



$$(20x + 5) + (20x - 5) = 180$$

$$20x + 20x + 5 - 5 = 180$$

$$40x = 180$$

$$x = \frac{180}{40} = \frac{9}{2}$$

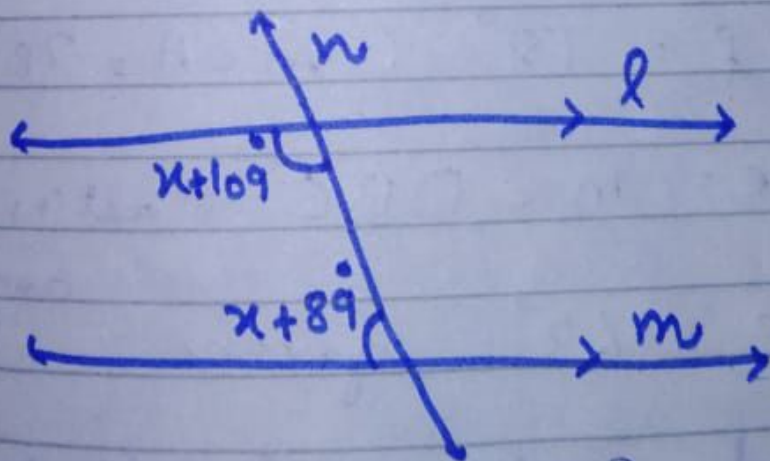
$$20x - 5 = 20\left(\frac{9}{2}\right) + 5$$

$$= 10 \times 9 + 5$$

$$= 90 + 5$$

$$= 95^\circ$$

(iv) Solve for x also find angles



$$x + 109 + x + 89 = 180$$

$$2x = 180 - 198$$

$$2x = -18$$

$$\therefore x = \frac{-18}{2}$$

$$\boxed{x = -9}$$

$$h = 14 \text{ cm}$$

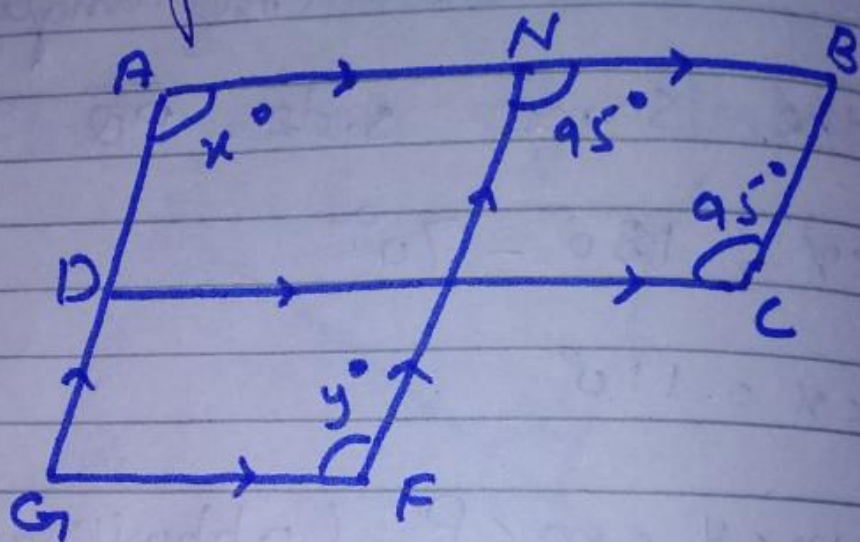
Now $m \overline{RF} = m \overline{UD}$ (opp sides)

$$m \overline{RF} = 16 \text{ cm}$$

parallelogram

$$g = 16 \text{ cm}$$

(iv)



ABCD is a parallelogram

$$m \angle x = 95^\circ \text{ (Corresponding Angles)}$$

AGFN is a parallelogram

$$m \angle x = m \angle y \text{ opposite angles}$$

$$m \angle y = 95^\circ \therefore m \angle x = 95^\circ$$

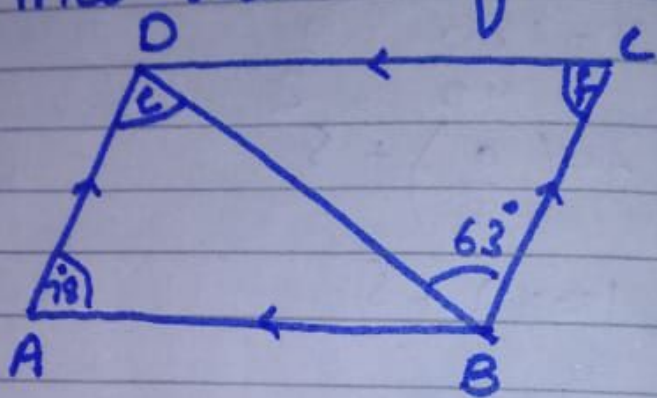
Now $x + 109 = -9 + 109 = 100^\circ$

$x + 89 = -9 + 89 = 80^\circ$

Exercise # 7.2 (Solutions)

(1) Find value of Unknown

(i)



ABCD is a parallelogram.

$$m\angle f = m\angle A \quad (\text{opposite angles})$$

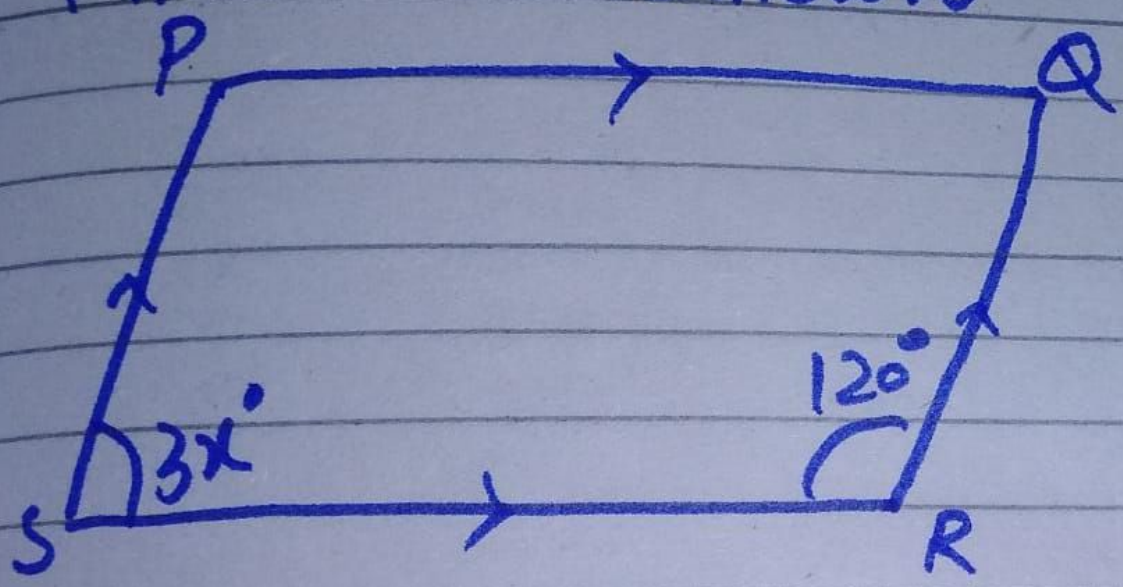
$$m\angle f = 78^\circ \quad (m\angle A = 78^\circ)$$

$$m\angle e = m\angle DBC \quad (\text{alternate angles})$$

$$m\angle e = 63^\circ \quad \text{given}$$

(ii) Find value of Unknown?

v) Find Unknown



$$m\angle 3x + 120^\circ = 180^\circ$$

$$m\angle 3x = 180^\circ - 120^\circ$$

$$3x = 60^\circ$$

$$x = \frac{60^\circ}{3}$$