Class - 7

Ch - 8

ex 8.1

Date:

Page No. 1

① Express the following as ratios

a) 6Kg to 10Kg

$= \frac{6}{10}$

$= \frac{3}{5}$

$= 3:5$

(c) ₹7000 to ₹3500

$= \frac{7000}{3500}$

$= \frac{2}{1} = 2:1$

(d) 50KM to 70KM

$= \frac{50}{70}$

$= \frac{5}{7} = 5:7.$

② Express the following as ratios in the simplest form

a) ₹7 and 50 paise to ₹4

$= \frac{7.50}{4}$

$= \frac{7.50 \times 100}{4 \times 100}$

$= \frac{750}{400}$

$= \frac{15}{8}$

$= 15:8$

(b) 700ml to 1 litre

$= \frac{700}{1}$

$= \frac{700}{1 \times 1000}$ $\boxed{1l = 1000\ ml}$

$= \frac{700}{1000}$

$= \frac{7}{10}$

$= 7:10$

ex 4.2

(1) In a farm house, There are 80 cows and 30 buffaloes. what is the ratio of the cows to the buffaloes?

Sol^n Total no of cows = 80
Total no of buffaloes = 30

$$\text{Ratio} = \frac{\text{no of cows}}{\text{no of buffaloes}}$$
$$= \frac{80}{30}$$
$$= \frac{8}{3}$$
$$= 8:3$$

∴ The required ratio = 8:3

Q2 In a packet of sweets, for every 20 sweets, There were 4 chocolates bars and the remaining were Toffees. what is the ratio of the Toffees to the chocolates?

Sol^n Total no of sweets = 20
Total no of chocolates bar = 4
Total no of Toffees = 20 − 4
= 16.

$$\text{Ratio} = \frac{\text{no of Toffees}}{\text{no of chocolates}}$$
$$= \frac{16}{4}$$
$$= \frac{4}{1}$$
$$= 4:1$$

∴ The required ratio = 4:1

3 The measure of two angles are in the ratio 7:8 and they are supplementary angles. what are the measures in degree?

Sol^n Let the two angles be $7x$ and $8x$
since they are supplementary angles
The sum of the two angles is 180°.

$\Rightarrow 7x + 8x = 180^\circ$
$\Rightarrow 15x = 180^\circ$
$\Rightarrow x = \frac{180}{15}$ 12

$\Rightarrow x = 12$

$\therefore$ The 1^{st} angle $= 7 \times 12 = 84^\circ$
2^{nd} angle $= 8 \times 12 = 96^\circ$

```
      12
   15)180
      15
      ---
      30
      30
      --
       0
```

```
  1
 84
+96
---
180
```

4 The sides of the rectangular field are in the ratio 9:7 and the perimeter is 144 M. Find the sides.

Sol^n Let length 'l' be $9x$ and breadth 'b' be $7x$

perimeter of a rectangle $= 2(l+b)$

Perimeter of the field $= 144m$
$\Rightarrow 2 \cdot (l+b) = 144$
$\Rightarrow 2(9x+7x) = 144$
$\Rightarrow 2 \times 16x = 144$
$\Rightarrow 32x = 144$
$\Rightarrow x = \frac{144}{32}$
$\Rightarrow x = 4.5$

$\therefore$ length $= 9x$
$= 9 \times 4.5$
$= 40.5 m$

breadth $= 7x$
$= 7 \times 4.5$
$= 31.5 M.$

6 The sides of a triangle are in ratio 2:3:4 and its perimeter is 63cm. what are the length of its perimeter?

Soln Let the sides of the Δ be 2x, 3x & 4x

Perimeter of Δ = 63 cm.

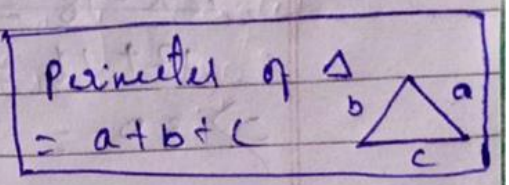
$\Rightarrow 2x + 3x + 4x = 63$

$\Rightarrow 9x = 63$

$\Rightarrow x = \frac{63}{9}^{7}$

$\therefore x = 7$

Perimeter of Δ = a+b+c



$\therefore$ Sides of the Δ

$= 2x$

$= 2 \times 7 = 14$ cm

$3x$

$= 3 \times 7 = 21$

$4x$

$= 4 \times 7 = 28$

7 Amar divided his collection of stamps in the ratio 6:5 between his two sister Sheila and Amina. If Sheila received 23 more stamps than Amina, How many stamps did he distribute?

Soln Let Sheila's share be 6x

and Amina's share be 5x

Sheila received 23 more stamps than Amina.

A/Q

$6x - 5x = 23$

$\therefore x = 23$

Distribution $= 23 \times (6+5)$

$= 23 \times 11$

$= 253$ stamps.

3 The numerator and dinominator of a fraction are in ratio 3:2. If 3 is added to the ~~numerator~~ numerator and 2 is ~~added~~ subtracted from the dinominator, a new fraction is formed whose value is $\frac{9}{4}$. Find the original fraction.

Sol^n Let the numerator be $3x$
and Dinominator be $2x$

A/Q

$$\Rightarrow \frac{3x+3}{2x-2} = \frac{9}{4}$$

$\Rightarrow 4(3x+3) = 9(2x-2)$ (Cross multiplication)

$\Rightarrow 12x + 12 = 18x - 18$

$\Rightarrow 12 + 18 = 18x - 12x$ (Like terms)

$\Rightarrow 30 = 6x$

$\Rightarrow \frac{30}{6} = x$

$\Rightarrow 5 = x$

$\therefore x = 5$

Now,

Numerator $= 3x$
$= 3 \times 5$
$= 15$

Dinominator $= 2x$
$= 2 \times 5$
$= 10$

9 Alka and Swetha invested ₹1800 and ₹2400 respectively in a small ~~merchant~~ business. They made a profit of ₹1400. They decided to divide the profit between them in the ratio of their investment. How much did each get as profit?

Soln Alka investment = ₹1800
Swetha investment = ₹2400

Ratio = $\frac{\text{Alka investment}}{\text{Swetha investment}}$

$= \frac{1800}{2400}$

$= \frac{3}{4}$

$\therefore$ Ratio = 3:4

Profit they made = ₹1400

$\therefore 3x + 4x = 1400$

$\Rightarrow 7x = 1400$

$\Rightarrow x = \frac{1400}{7}$

$\therefore x = 200$

Alka's share = $3x$
$= 3 \times 200$
$= ₹600$

Swetha share = $4x$
$= 4 \times 200$
$= ₹800$

10 Two number are in the ratio 7:10. If the largest number is 140, what is the smaller number?

Soln Let the smaller no be $7x$
and larger no be $10x$

A/Q

Largest no = 140

$\Rightarrow 10x = 140$

$\Rightarrow x = \frac{140}{10}$

$x = 14$

Smaller no $= 7x$

$= 7 \times 14$

$= 98$

12 The angle of a pentagon are in the ratio 2:4:2:1:1. If the Total measure of the angle of a pentagon is 540°, what are the measure of each angles?

Soln Let the angles of the pentagon be
$2x, 4x, 2x, 1x$ and $1x$

Total measure of the angles $= 540°$

$\therefore 2x + 4x + 2x + 1x + 1x = 540$

$\Rightarrow 10x = 540$

$\Rightarrow x = \frac{540}{10} = 54$

$\therefore x = 54$

Measure of each angle

1^{st} angle $= 2x$

$= 2 \times 54$

$= 108°$

2^{nd} angle $= 4x$

$= 4 \times 54$

$= 216°$

$\therefore$ The angles are $108°, 216°, 108°, 54°, 54°$

ex 8.3

Q1 Are the two ratio 30 : 50 and 50 : 75 equivalent ?

* Two ratios are said to be equivalent if their corresponding fraction are equivalent

$\Rightarrow \frac{30}{50} = \frac{50}{75}$

By cross multiplication

$\Rightarrow 30 \times 75 = 2250$

$50 \times 50 = 2500$

Since $30 \times 75 \neq 50 \times 50$

The ratios are not equivalent.

Q3 Rohit covered 120m in 20 seconds, Then in How much time would he covered 210m ?

Sol

Distance covered	Time Taken.
120 m	20
210 m	x

$= 120 : 210 :: 20 : x$

Product of extreme = Product of means

$\Rightarrow 120 \times x = 210 \times 20$

$\Rightarrow 120x = 4200$

$\Rightarrow x = \frac{35\ 4200}{120}$

$\Rightarrow x = 35$

$12 \overline{)420} \; 35$

96

60

60

$\therefore$ Time taken to cover 210m = 35 seconds.

5 A box of apples cost ₹354. How many boxes of can be bought with ₹1770

Sol^n cost of apples — No of boxes

354 — 1

1770 — x

354 : 1770 :: 1 : x

Product of extreme = product of means

$\Rightarrow 354x = 1770 \times 1$

$\Rightarrow 354x = 1770$

$\Rightarrow x = \frac{1770}{354}$

$x = 5$

∴ No of boxes = 5 boxes.

6 The scale of a particular map is 1 : 1,00,000. on the map, The school is shown 2.5 cm away from Jatinder's house. How far is his house from the school? Express this answer in Km.

Sol^n The scale of map is 1 : 100000

map distance from house to school = 2.5 cm.

Original distance = 2.5 × 100000 cm

= 250000 cm

We know that 1 Km = 100000 cm

$\therefore \frac{250000}{100000}$ Km

= 2.5 Km.

∴ The house of Jatinder is 2.5 Km far away from the school.

7 23 people has lunch in a hotel and the rate per lunch is the same for all. If it cost ₹ 3105 in total, how much will it cost for 60 people to have lunch in the same hotel at the same rate.

Sol^n

No of people	Cost of the lunch
23	3105
60	x

$= 23 : 60 : 3105 : x$

product of extreme = product of mean

$\Rightarrow 23 \times x = 60 \times 3105$

$\Rightarrow 23x = 1,86,300$

$\Rightarrow x = \frac{186300}{23}$

$\Rightarrow x = 8100$

$\therefore$ cost for 60 people to have lunch = ₹ 8100

* $a : b : c : d$

(extreme: a, d; mean: b, c)

product of extreme $= a \times d$

product of means $= b \times c$

8.4

1 125 g of yoghurt provide 4.5 g protein. How many grams of protein does 100 g of yoghurt provide?

Sol: 125 g yoghurt provides 4.5 g protein

1 g of yoghurt will provide $\frac{4.5}{125}$ g protein

∴ 100 g yoghurt will provide

$= \frac{4}{100} \times \frac{4.5}{125} = 0.9$

$= 3.6$ g.

Q2 In a poultry farm, every 100 birds provide an average of 72 eggs. How many birds will produce 324 eggs?

Sol: 100 birds provides an average of 72 eggs

Average birds for an egg

$= \frac{100}{72} = \frac{25}{18}$

$= \frac{25}{18}$ birds

For 324 eggs

$= \frac{25}{18} \times 324$

$= 25 \times 18$

$= 450$ birds

4 50 people consume on average of 110 kg of rice in a week. If 20 more people join the group, How many kilogram of rice will be needed for a week?

Soln 50 people consume 110 kg of rice.

1 man can consume on average of rice $= \frac{110}{50}$ kg

$= \frac{11}{5}$ kg

If 20 more people join the group

Total no of people $= 50 + 20$

$= 70$ people

Rice needed for 70 people for a week

$= \frac{11}{5} \times 70^{14}$

$= 11 \times 14$

$= 154$ kg.

7 In 3 hours, a train covers 195 Km. Travelling at the same speed, what distance would the train cover in 5 hours.

Soln Distance covered in 3 hours = 195 km.

Distance covered in 1 hour $= \frac{195^{65}}{3}$ km

$= 65$ Km

Distance covered in 5 hours

$= 65 \times 5$

$= 325$ Km.

Exercise 10.1

1. Identify the following pairs of angles as complementary, Supplementary or equal.

(a) 77° and 103° — Supplementary angles

(b) 177° and 177° — Equal angles

(c) 7° and 173° — Supplementary angles

(d) 3° and 87° — complementary angles

(e) 45° and 45° — complementary angles

(f) 90° and 90° — Equal angles.

2. Write the complements of the following angles

(a) $45^\circ = 90^\circ - 45^\circ = 45^\circ$

(b) $40^\circ = 90^\circ - 40^\circ = 50^\circ$

(c) $10^\circ = 90^\circ - 10^\circ = 80^\circ$

(d) $54^\circ = 90^\circ - 54^\circ = 36^\circ$

(e) $61^\circ = 90^\circ - 61^\circ = 29^\circ$

(f) $36^\circ = 90^\circ - 36^\circ = 54^\circ$

(g) $17^\circ = 90^\circ - 17^\circ = 73^\circ$

(h) $4^\circ = 90^\circ - 4^\circ = 86^\circ$

3. Write the Supplements of the following angles.

(a) $80^\circ = 180^\circ - 80^\circ = 100^\circ$

(b) $10^\circ = 180^\circ - 10^\circ = 170^\circ$

(c) $125^\circ = 180^\circ - 125^\circ = 45^\circ$

(d) $138^\circ = 180^\circ - 138^\circ = 42^\circ$

(e) $38^\circ = 180^\circ - 38^\circ = 142^\circ$

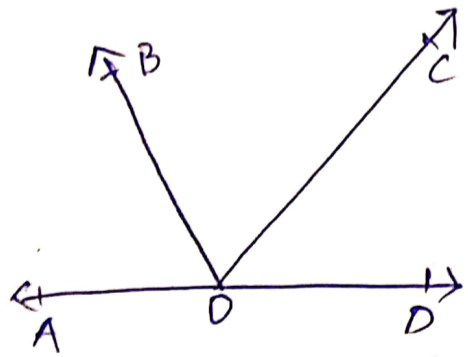
(f) $114^\circ = 180^\circ - 114^\circ = 66^\circ$

(g) $100^\circ = 180^\circ - 100^\circ = 80^\circ$

(h) $21^\circ = 180^\circ - 21^\circ = 159^\circ$

4) Name the following angles in the following

(a)



Ans

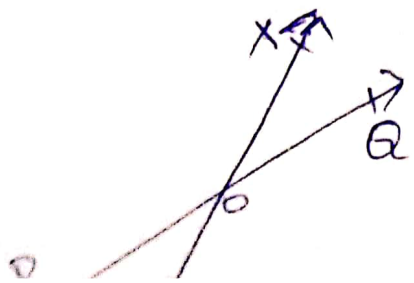
$\angle AOB$ and $\angle COB$.

$\angle AOB$ and $\angle DOB$

$\angle BOC$ and $\angle DOC$

$\angle AOC$ and $\angle DOC$

(b)



$\angle POY$ and $\angle QOY$

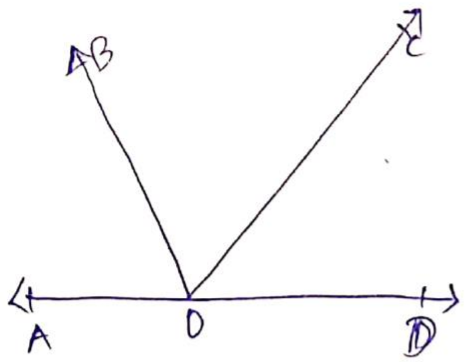
$\angle POY$ and $\angle XOP$

$\angle XOQ$ and $\angle YOQ$

$\angle POX$

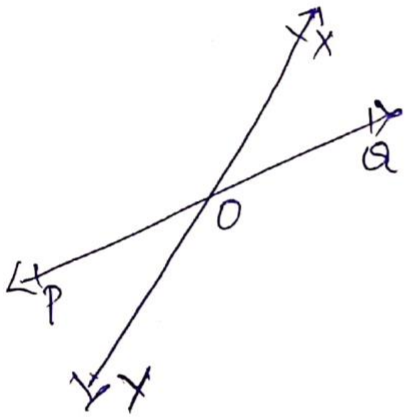
5) Identify the linear pairs of in the fig. in (Q4) above.

(a)



- $\angle AOB$ and $\angle DOB$ are linear pairs
- $\angle AOC$ and $\angle DOC$ are linear pairs

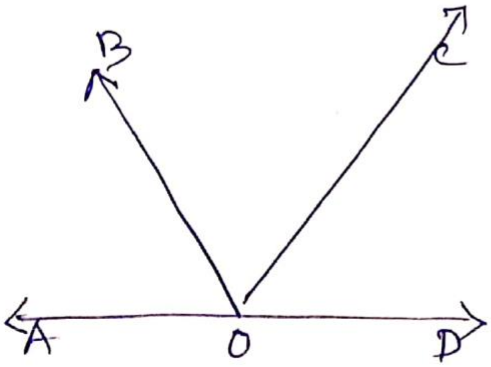
(b)



- $\angle POY$ and $\angle QOY$ are linear pairs
- $\angle POX$ and $\angle QOX$ are linear pairs

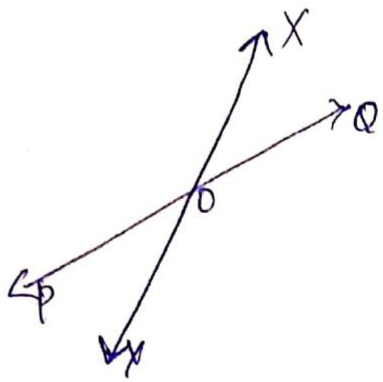
b) Identify the vertically opposite angles in the fig (Q4) above.

a)



$\angle AOB$ and $\angle DOC$ are opposite angles

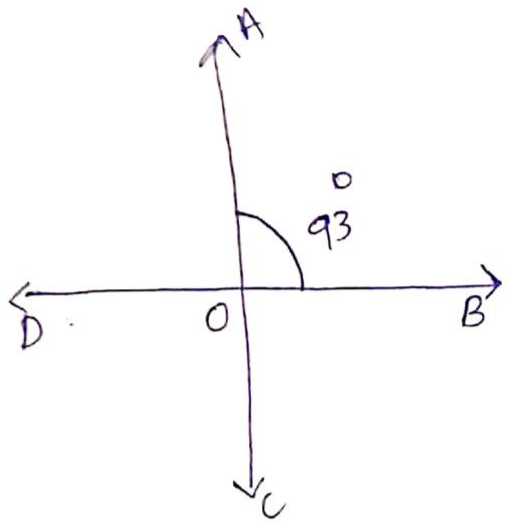
(b)



$\angle POY$ and $\angle QOX$
$\angle QOY$ and $\angle POX$
are vertically opposite angles

7 The measure of one angle is given in the following figure Find all the other angles.

(a)



$\angle AOB + \angle DOA = 180$

$\angle DOA = 180 - \angle AOB = 180° - 93° = \underline{87°}$

$\angle AOB = \angle COD$ (opposite angles are equal)

then $\angle COD = \underline{93°}$

$\angle BOC = \angle DOA$ (Opposite angles are equal)

$\angle DOA = 87°$

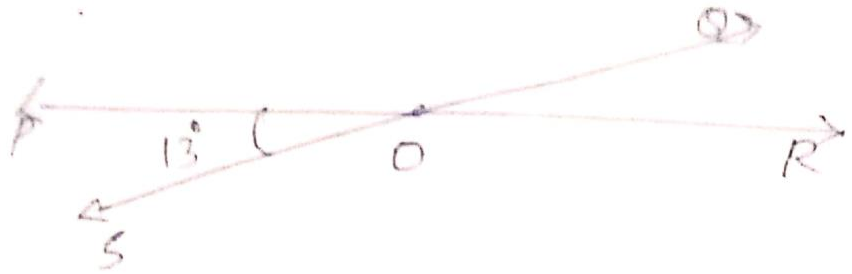
$\angle BOC = \underline{87°}$

$\angle AOB = 93°$

$\angle DOA = 87°$

$\angle COD = 93°$

$\angle BOC = 87°$



$\angle POS + \angle ROS = 180^\circ$ (Linear pair)

$\angle ROS = 180^\circ - \angle POS$

$= 180^\circ - 13^\circ = \underline{167^\circ}$

$\angle POS$ ~~and~~ $= \angle ROQ$ (Vertically opposite angles are equal)

$\angle ROQ = 13^\circ$

$\angle ROS = \angle QOP = 167^\circ$ (Vertically opposite angles are equal)

$\angle POS = 13^\circ$

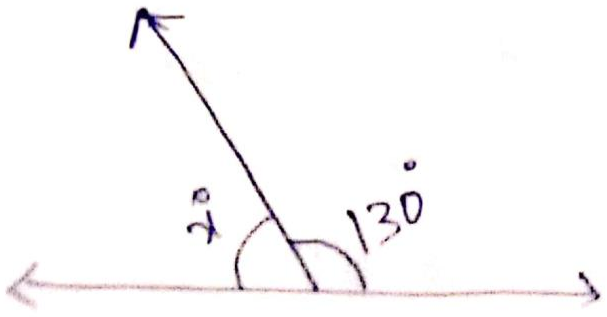
$\angle ROS = 167^\circ$

$\angle ROQ = 13^\circ$

$\angle QOP = 167^\circ$

) Find the measure of x in the following fig

(a)

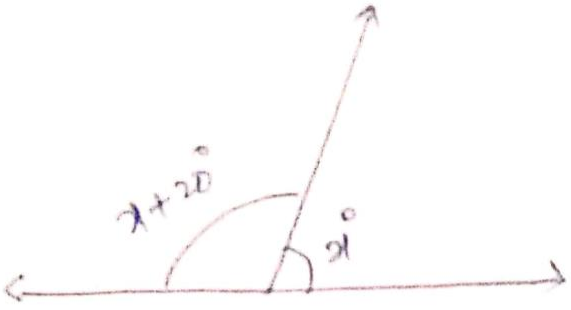


$x^\circ + 130 = 180$

$x = 180^\circ - 130^\circ$

$= 50^\circ$

b)



$x^\circ + 20^\circ + x^\circ = 180^\circ$

$2x^\circ + 20^\circ = 180^\circ$

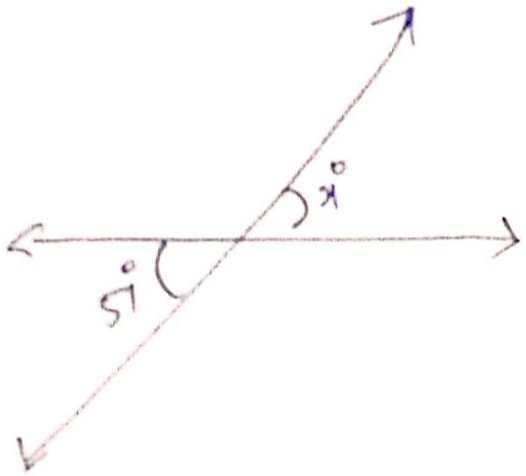
$2x = 180 - 20 = 160^\circ$

$2x = 160$

$x = \frac{160^\circ}{2} = 80^\circ$

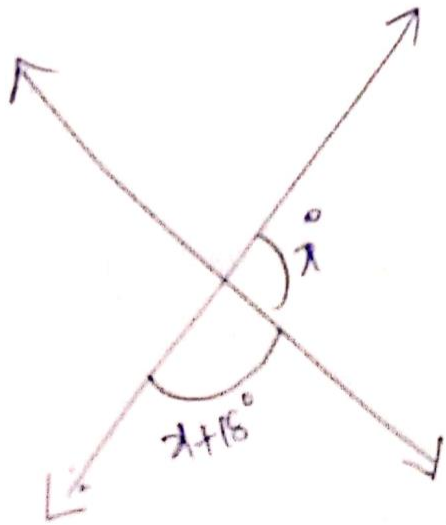
$x+20^\circ$

c)



$x = 51^\circ$ (opposite angles are equal)

d)



$x^\circ + 18^\circ + x^\circ = 180^\circ$ (adj. angle

$2x^\circ + 18^\circ = 180^\circ$

$2x^\circ = 180^\circ - 18^\circ$

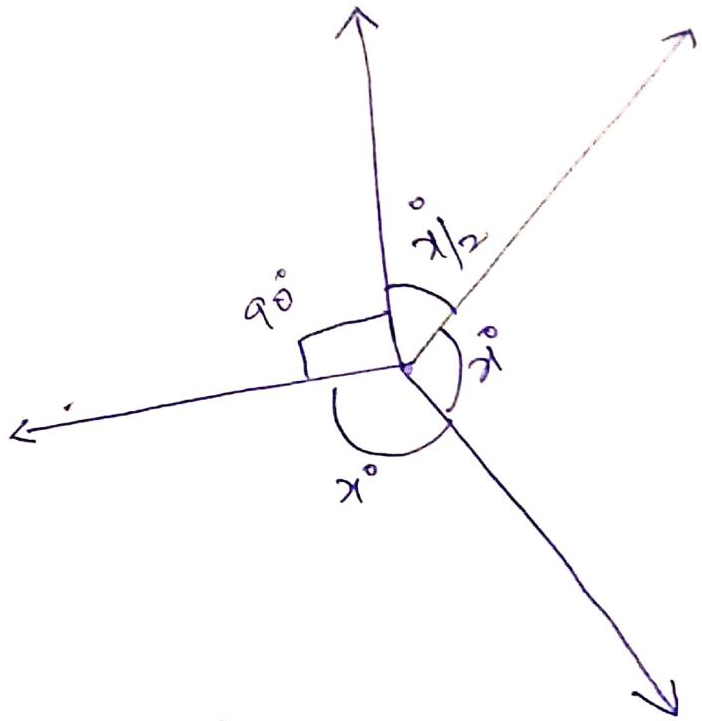
$= 162^\circ$

$x = \frac{162^\circ}{2} = 81^\circ$

$x = 81^\circ$

(4)

e)



$$x^\circ + x^\circ + \frac{x^\circ}{2} + 90^\circ = 360^\circ$$

$$2x^\circ + \frac{x^\circ}{2} + 90^\circ = 360^\circ$$

$$\frac{4x^\circ + x^\circ}{2} + 90 = 360$$

$$\frac{5x^\circ}{2} = 360 - 90$$

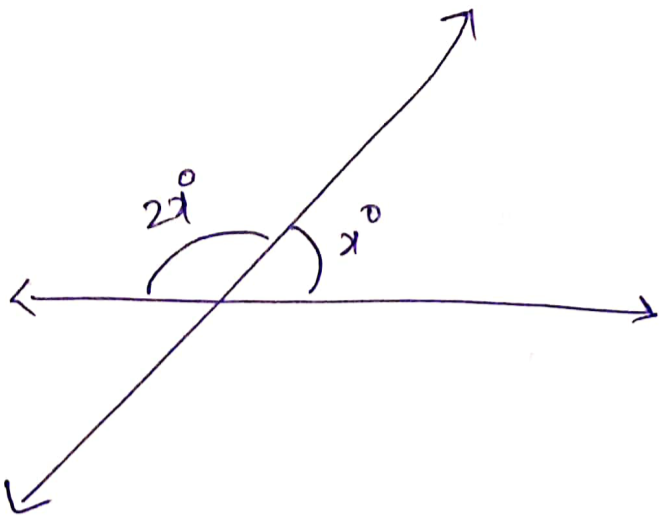
$$\frac{5x^\circ}{2} = 270$$

$$5x^\circ = 270 \times 2 = 540$$

$$5x^\circ = 540^\circ$$

$$x = \frac{540^\circ}{5} = 108^\circ$$

f)



Q

$2x^\circ + x^\circ = 180^\circ$ (Linear pairs)

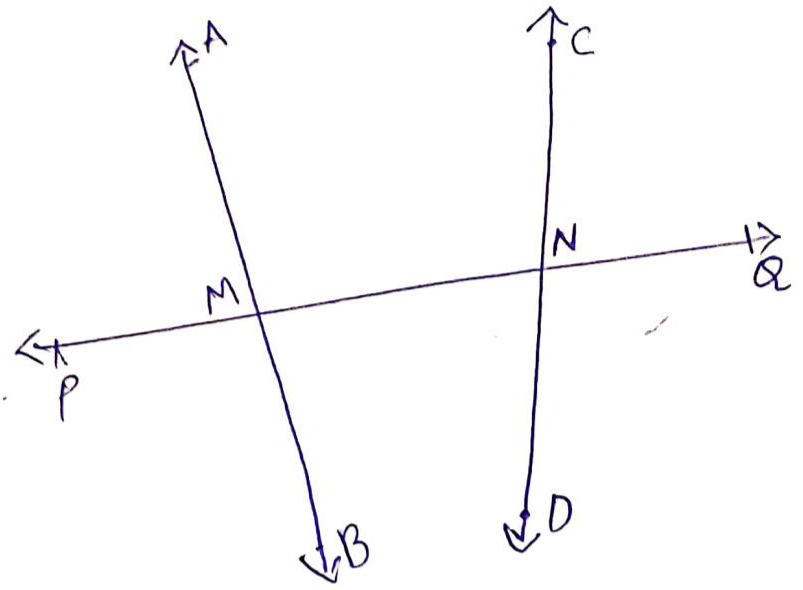
$3x = 180^\circ$

$x = \frac{180^\circ}{3}$

$x = 60^\circ$

Exercise 10.2

1. Name the required angles in figure shown b



a) The angle vertically opposite to $\angle AMN = \angle BMP$

b) The angle alternate to $\angle CNQ = \angle BMP$

c) The angle alternate to $\angle MNC = \angle QND$

d) The angle corresponding to $\angle BMP = \angle CNQ$

e) The angle corresponding to $\angle BMN = \angle CNM$

f) The angle vertically opposite to $\angle QND = \angle CNM$

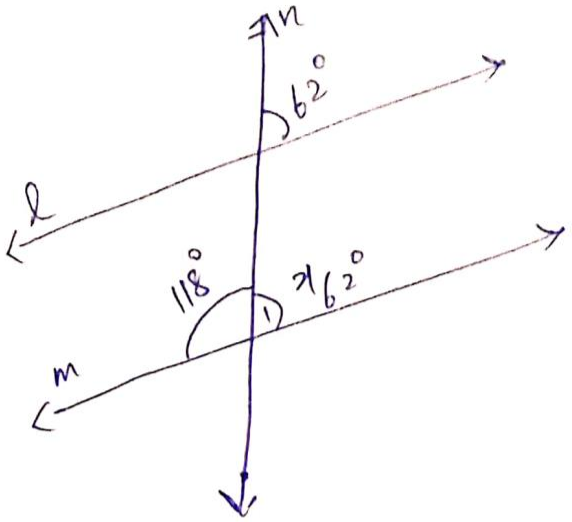
g) The angle alternate to $\angle MND = \angle BMN$

(k) The angle alternate to $\angle AMP = \angle CNQ$

(i) The angle vertically opposite to $\angle PMB = \angle AM$

(j) The angle corresponding to $\angle CNQ = \angle BMP$

2. Lines l and m are intersected by transversal n, The measures of two angles are given in the figure is $l \parallel m$? Give reasons for your answer



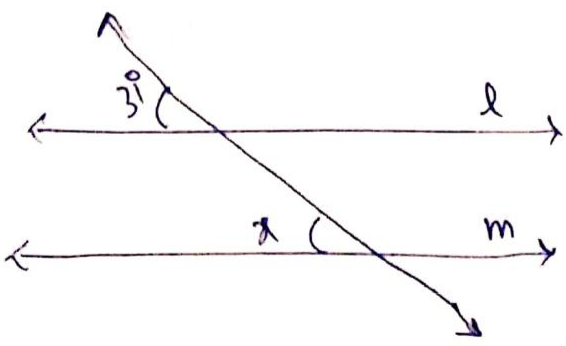
$$118^\circ + x = 180^\circ$$

$$x = 180 - 118^\circ$$

$$= 62^\circ$$

If the corresponding angles are equal then two lines l and m are parallel to each other.

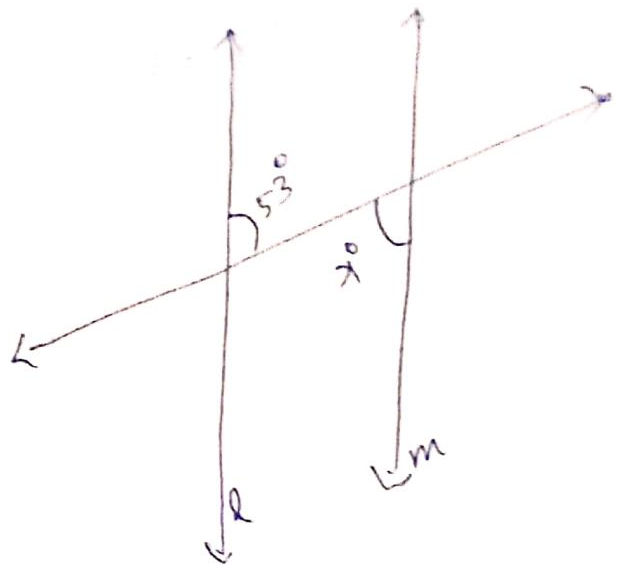
3. Given $l \parallel m$. Find the measure of x in the following figures.



$x = 31^\circ$

(R)

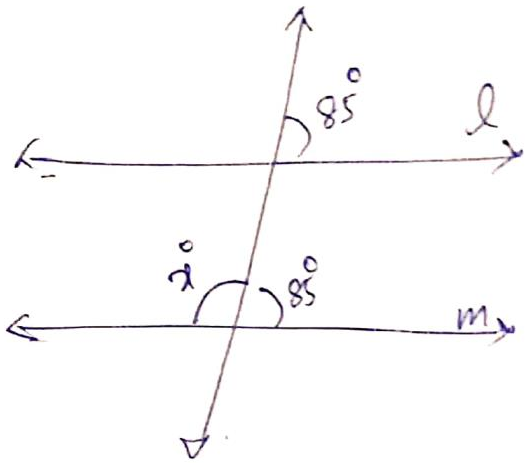
b)



$x = 53^\circ$.

alternate interior angles are equal

c)

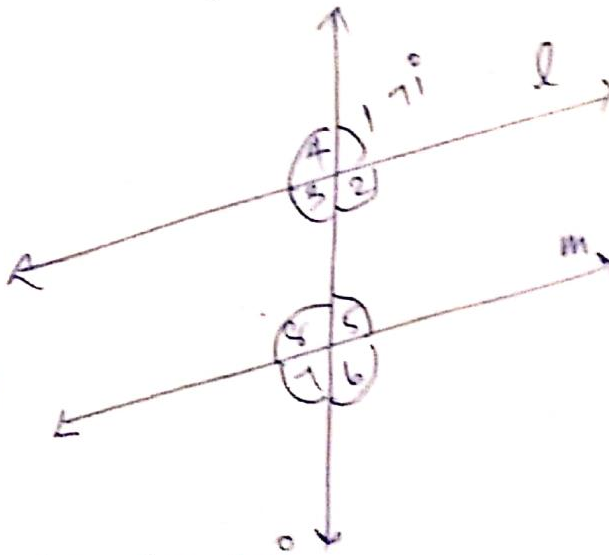


$x^\circ + 85^\circ = 180^\circ$

$x = 180 - 85^\circ$

$= 95^\circ$

4. Given $l \parallel m$ and $\angle 1 = 71^\circ$, find the measures of all the other angles in the figure below.



$\angle 1 = 71^\circ$

$\angle 1 + \angle 4 = 180$

$\angle 4 = 180^\circ - \angle 1$

$= 180 - 71^\circ = 109^\circ$

$\angle 1 = \angle 3$ (opposite angles are equal)

$\angle 4 = \angle 2 = 109^\circ$

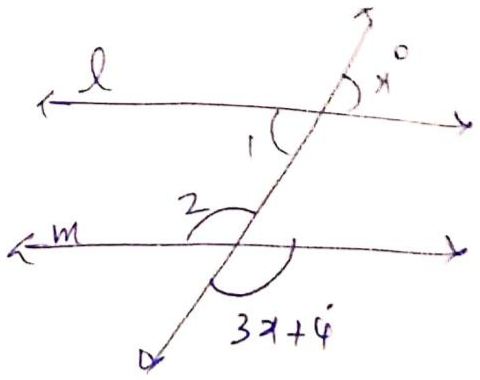
$\angle 5 = \angle 1 =$ alternate angles.

$= 71^\circ$

$\angle 8 = \angle 4 = 109^\circ$

$\angle 8 = \angle 6 = 109^\circ$.

5. Given $l \parallel m$. Find the measures of $\angle 1$ and $\angle 2$ in the figure shown below



$x^\circ + 3x^\circ + 4 = 180^\circ$

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

$4x = 180 - 4^\circ$

$4x = 176$

$x = \frac{176^\circ}{4} = 44^\circ$

$x = \angle 1 = 44^\circ$

$\angle 2 = 3x + 4^\circ = 3 \times 44 + 4$

$= 132 + 4 = 136^\circ$

Chapter Check up

1). Find the complements of the following angles.

a) $45^\circ = 90 - 45^\circ = 45^\circ$

b) $8^\circ = 90 - 8^\circ = 82^\circ$

c) $20^\circ = 90^\circ - 20^\circ = 70^\circ$

d) $85^\circ = 90 - 85^\circ = 5^\circ$

e) $13^\circ = 90 - 13^\circ = 77^\circ$

f) $25^\circ = 90 - 25^\circ = 65^\circ$

g) $78^\circ = 90 - 78^\circ = 12^\circ$

h) $43^\circ = 90 - 43^\circ = 47^\circ$

i) $18^\circ = 90 - 18^\circ = 72^\circ$

j) $4^\circ = 90 - 4^\circ = 86^\circ$

2. Find the Supplements of the following angles.

a) $50^\circ = 180^\circ - 50^\circ = 130^\circ$

b) $150^\circ = 180^\circ - 150^\circ = 30^\circ$

c) $105^\circ = 180^\circ - 105^\circ = 75^\circ$

d) $73^\circ = 180^\circ - 73^\circ = 107^\circ$

e) $128^\circ = 180 - 128^\circ = 52^\circ$

f) $140^\circ = 180 - 140^\circ = 40$

g) $169^\circ = 180 - 169^\circ = 11^\circ$

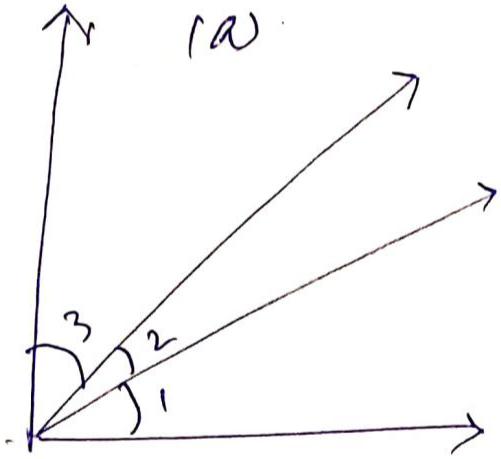
h) $100^\circ = 180 - 100^\circ = 80^\circ$

i) $106^\circ = 180 - 106^\circ = 74^\circ$

j) $29^\circ = 180 - 29^\circ = 151^\circ$

3. Identify the pairs of adjacent angles in the following figures.

(a)



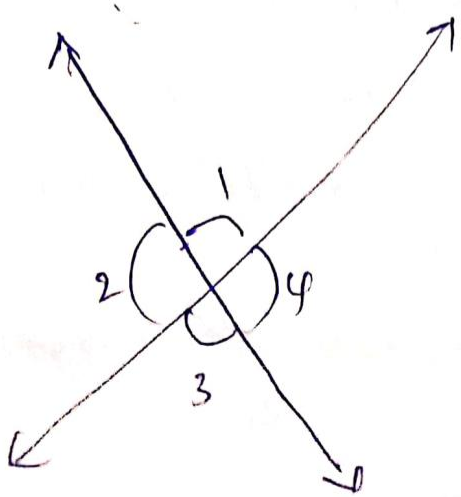
$\angle 1 = \angle 2$

$\angle 2 = \angle 3$

$\angle 1 + \angle 2 = \angle 3$

$\angle 3 + \angle 2 = \angle 1$

b)



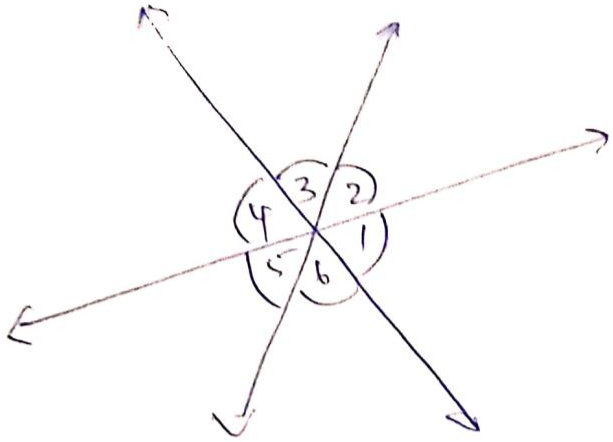
$\angle 1 = \angle 4$

$\angle 1 = \angle 2$

$\angle 2 = \angle 3$

$\angle 4 = \angle 3$.

c)



$\angle 1 = \angle 6$

$\angle 1 = \angle 2$

$\angle 3 = \angle 2$

$\angle 3 = \angle 4$

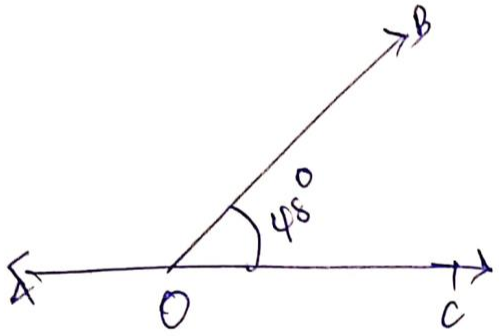
$\angle 4 = \angle 5$

$\angle 5 = \angle 6$

~~$\angle 6 = \angle 1$~~

4. Find all the angles in the following figures.

a)



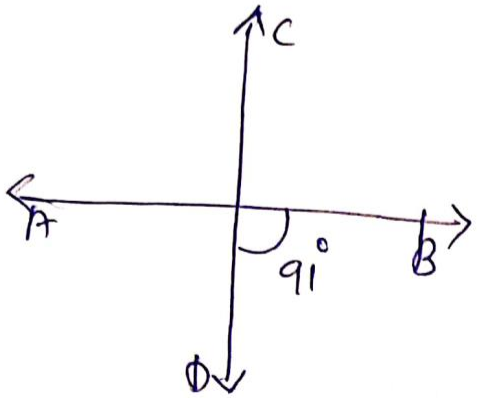
$\angle AOB + \angle BOC = 180^\circ$

$\angle AOB = 180^\circ - \angle BOC$

$= 180 - 48^\circ$

$\angle AOB = 132^\circ$

b)



$\angle AOD + \angle BOD = 180^\circ$

$\angle AOD = 180 - \angle BOD$

$= 180 - 91^\circ = 89^\circ$

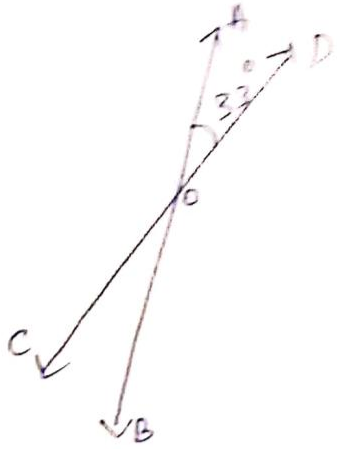
$\angle BOD = \angle AOC = 89^\circ$ (opposite ang

$= 91^\circ$

~~$\angle BOD = \angle$~~

$\angle AOD = \angle BOC = 89^\circ$.

c)



$\angle AOD + \angle BOD = 180^\circ$

$\angle BOD = 180 - 33^\circ$

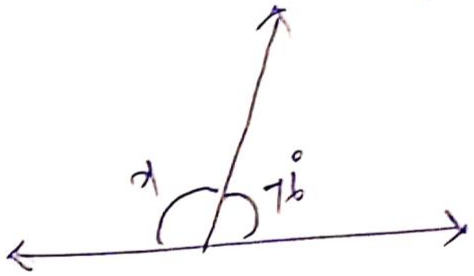
147°

$\angle AOC = \angle BOD = 147^\circ$

$\angle AOD = \angle BOC = 33^\circ$

5. Find the value of x in the following figures.

a)

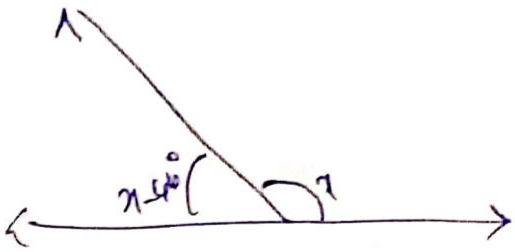


$x + 76^\circ = 180$

$x = 180 - 76^\circ$

$= 104^\circ$

b)



$x - 44 + x = 180$

$2x - 44 = 180^\circ$

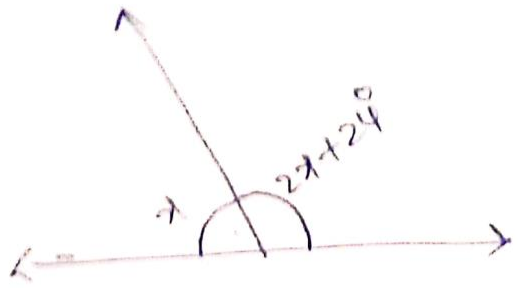
$2x = 180 + 44 = 224$

$x = \frac{224}{2} = 112^\circ$

$x - 44 = 112^\circ - 44$

$= 68^\circ$

c)



$x + 2x + 24^\circ = 180$

$3x + 24^\circ = 180^\circ$

$3x = 180 - 24^\circ = 156^\circ$

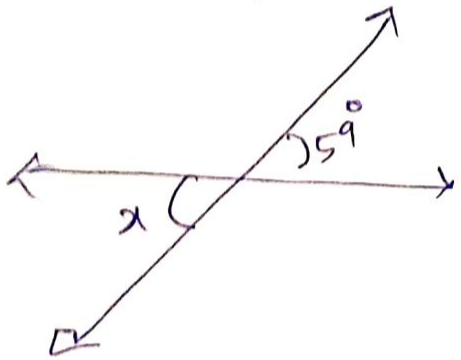
$x = \frac{156^\circ}{3} = \underline{52^\circ}$

$2x + 24 = 2(52) + 24$

$= 104 + 24$

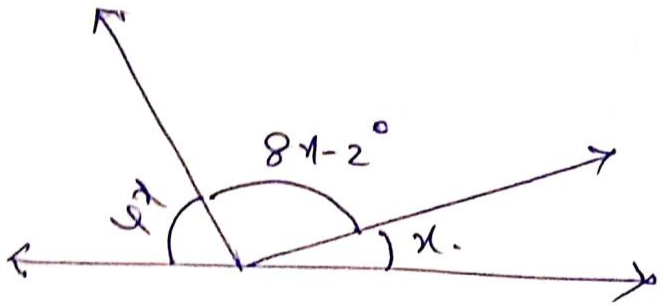
$= \underline{128^\circ}$

d)



$x = 59^\circ$

e)



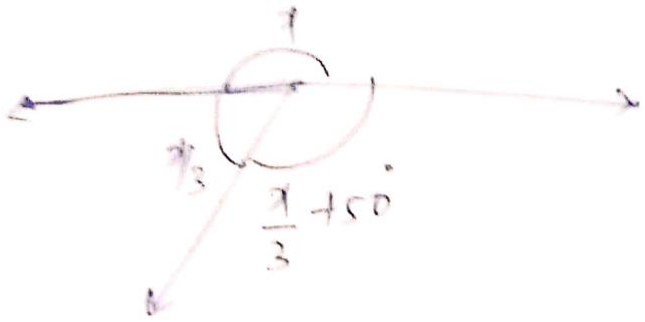
$4x + 8x - 2^\circ + x = 180^\circ$

$4x + 8x + x - 2 = 180$

$13x^\circ = 180^\circ + 2$

$x = \frac{182^\circ}{13^\circ} = \underline{14^\circ}$

f)



$$x + \frac{x}{3} + \frac{x}{3} + 50 = 360^\circ$$

$$x + \frac{2x}{3} + 50 = 360$$

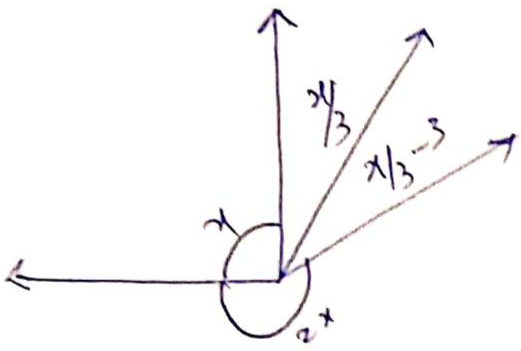
$$\frac{3x + 2x}{3} = 360 - 50 = 310$$

$$\frac{5x}{3} = 310$$

$$5x = 310 \times 3 = 930$$

$$x = \frac{930}{5} = 186^\circ$$

g)



$$x + \frac{x}{3} + \frac{x}{3} - 3 + 2x = 360^\circ$$

$$3x + \frac{2x}{3} = 360 + 3^\circ$$

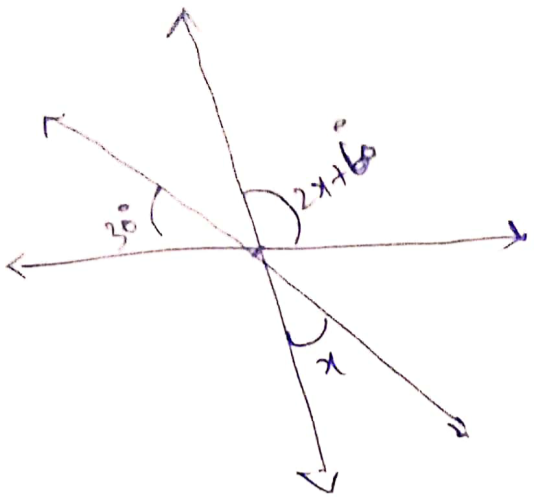
$$\frac{9x + 2x}{3} = 363^\circ$$

$$\frac{11x}{3} = 363$$

$$11x = 363 \times 3 = 1089$$

$$x = \frac{1089}{11} = 99^\circ$$

h)



$30 + x + 2x + 6 = 180^\circ$

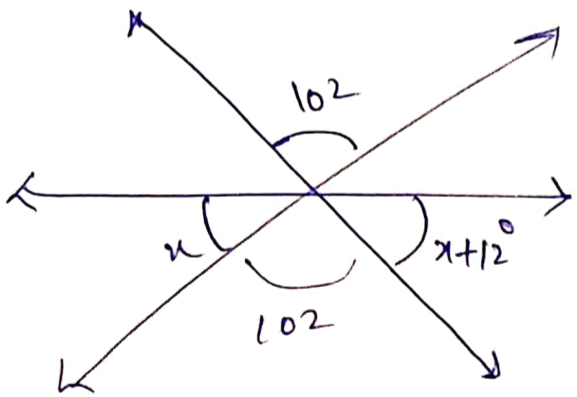
$3x + 36 = 180$

$3x = 180 - 36$

$3x = 144$

$x = \frac{144}{3} = 48^\circ$

i)



$x^\circ + 102^\circ + x + 12^\circ = 180^\circ$

$2x + 114^\circ = 180^\circ$

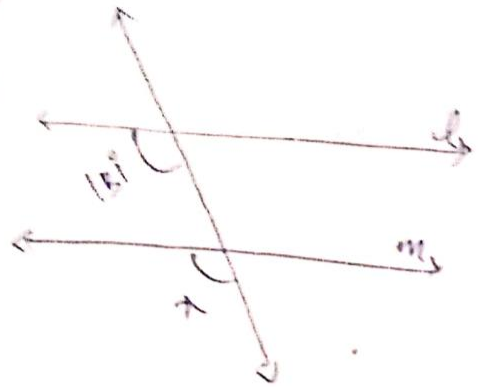
$2x = 180 - 114^\circ$

$2x = 66^\circ$

$x = \frac{66^\circ}{2} = 33^\circ$

6 Given lines or rays $\ell \| m$ in the following figures, find the measure of x

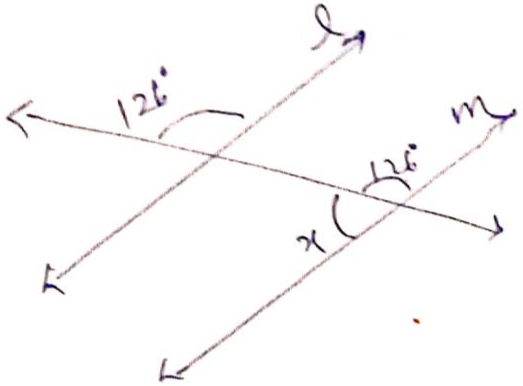
A)



Corresponding angles are equal $\ell \| m$.

$x = 131^\circ$

b)

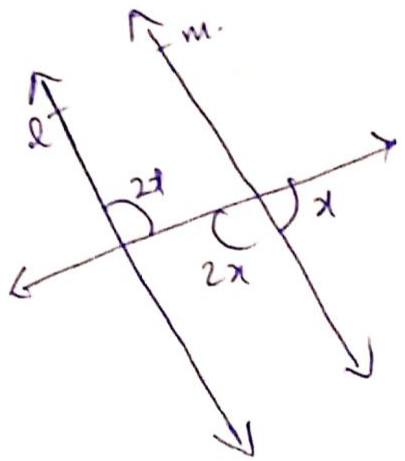


$x + 126^\circ = 180$

$x = 180 - 126^\circ$

$= 54^\circ$

c)

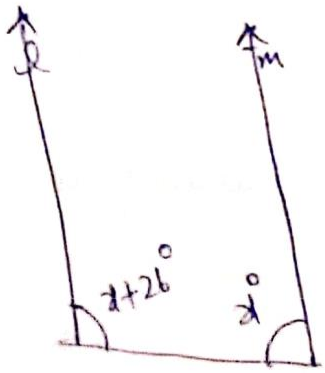


$x + 2x = 180^\circ$

$3x = 180^\circ$

$x = \frac{180}{3} = 60^\circ$

d)

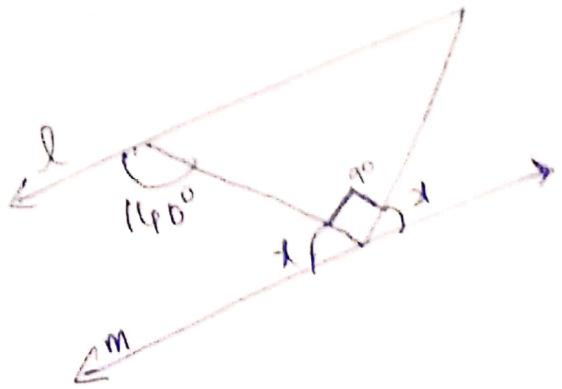


$x + 26 + x = 180^\circ$

$2x + 26 = 180$

$2x = 180 - 26 = 154^\circ$

$x = \frac{154}{2} = 77^\circ$



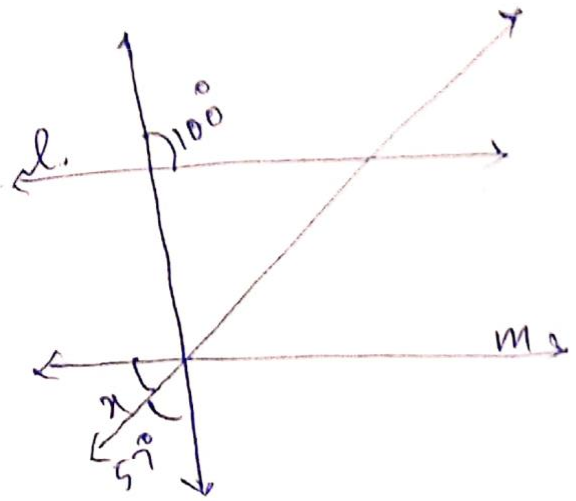
$x + 90 + x = 180$

$2x = 180 - 90$

$= 90$

$x = \frac{90}{2} = 45$

f)



alternate exterior angles are equal

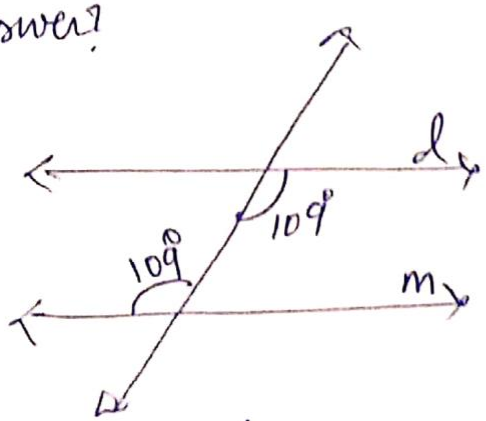
$x + 57^\circ = 100^\circ$

$x = 100 - 57^\circ$

$= \underline{43^\circ}$

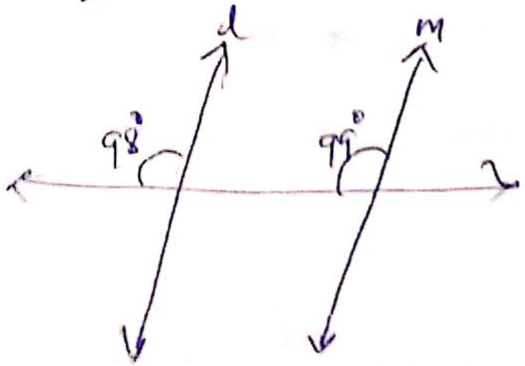
) a) Are lines or rays l and m parallel to each other in the following figures? Give reasons for your answer?

a)



l // m (alternate interior angles are equal)

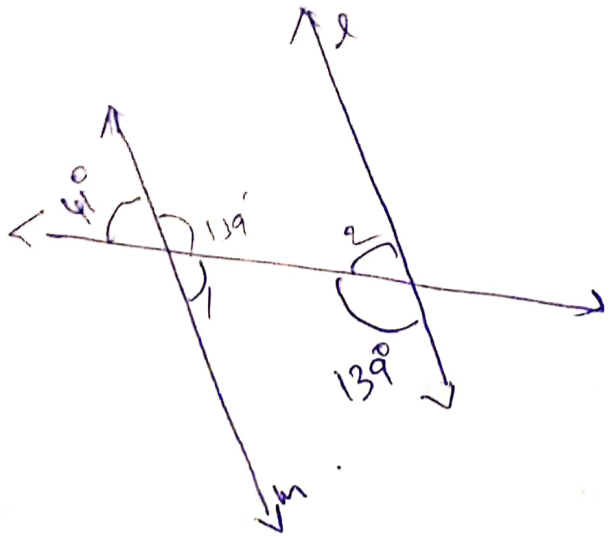
b)



l not parallel to m

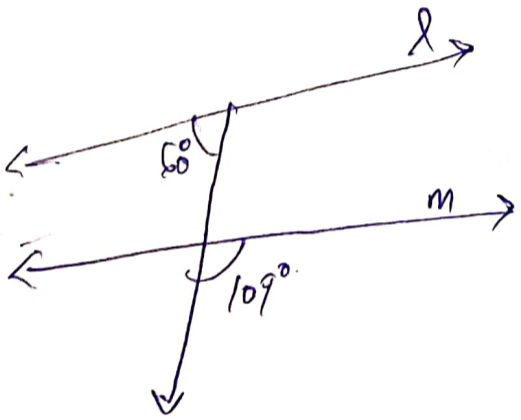
l // m corresponding angles are not equal so lines l and m intersect each other

c)



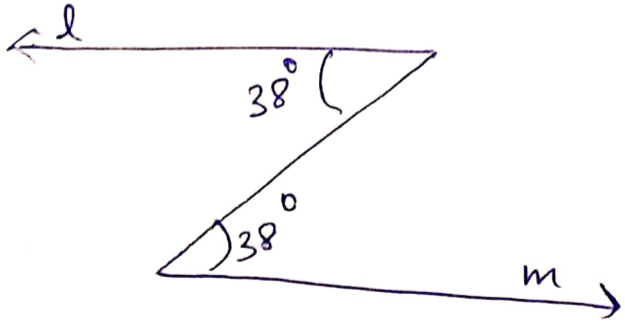
l and m are parallel alternate interior angles are equal

d)

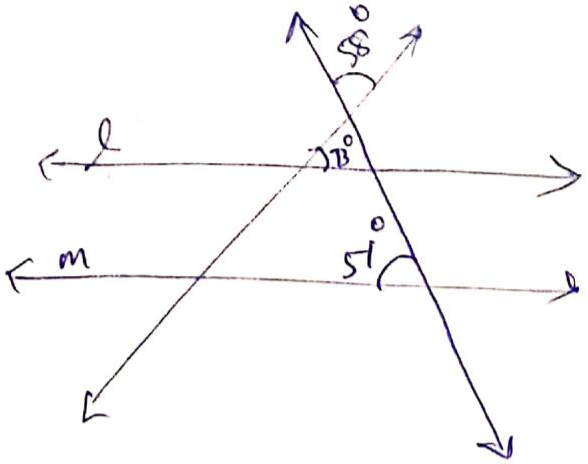


l and m are not parallel corresponding and alternate angles are not equal lines l and m intersect each other

e)



alternate interior angles are equal then l // m.

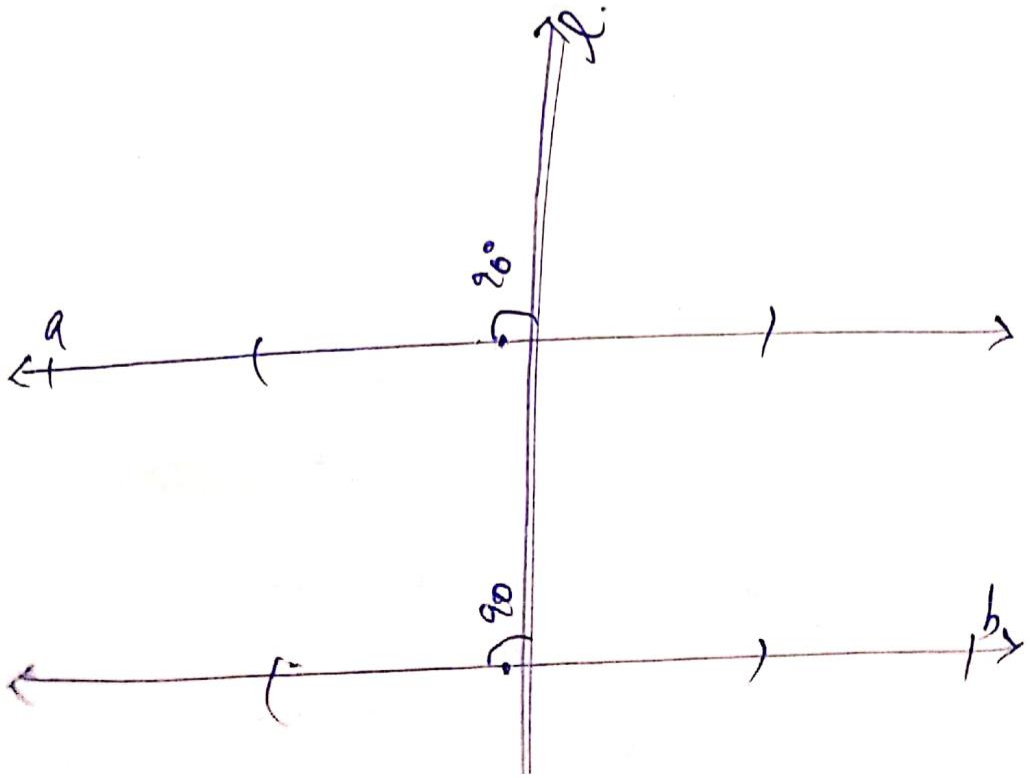


180 −
(131
58)
180 −
131
49

131 + 51 + 58

l // m not parallel
(interior angles are not equal.

The transversal l is perpendicular to line a as well as line b is a // b? Construct a diagram to illustrate your answer!



1. Mark the probability of the following in the lin

(a) Probability of a cat giving birth to a dog. P(C

(b) The Sun will rise on monday P(m)

(c) The chance that red will show up when a Spinner c colours (red, blue, yellow and green is rotated.

(d) The chance that a girl is chosen from a group g girls and 50 boys. P(G)

Solution

(a) A cat will never give birth to a dog. So probability is zero. i.e $P(C) = 0$

(b) The Sun will rise on Monday. There are days in a week. In that we have a one cha for rise of sun on Monday. So its probabil is $\frac{1}{7}$ // i.e $P(M) = \frac{1}{7}$

(c) Number of colour in the Spinner = 4
In that possibility to get red = 1
∴ Its probability $P(R) = \frac{1}{4}$

(d) Number of persons in the group = 12

2. Six frends were deciding where to go o

The Coming weekend. Everyone wrote Thier ch

on a slip of paper to show Thier choices

Fishing | Boating | Waterpark | Cricket match | Cricket match | Hillside

Wonite The probability of The following

(a) P(waterpark) = ?

Total number of choices = 6

No: of waterpark option = 1

∴ P(waterpark) = 1/6

=

(b) P(Cricket match) = ?

Total number of choices = 6

No: of Cricket match option = 2

∴ P(Cricket match) = 2/6 = 1/3

=

(c) P(fishing) = ?

Total number of choices = 6

No: of fishing option = 1

P(fishing) = 1/6

=

(d) P(

3. The letters of the word "PROBABILITY" are p
a bag and one letter is taken out.

(i) There are _____ Outcomes.

(ii) what is the Probability of the following being the
(a) P(P) = ___ (b) P(R) = ___ (c) P(B) = ___
(d) P(L) = ___ (e) P(Vowels) = ___ (f) P(Conso
(g) P(X) = ___ (h) P(any letter) = ___

Solution:

(i) The letters are 'P', 'R', 'O', 'B', 'A', 'I', 'L',
Number of letters = 9
∴ There are 9 Outcomes.

(ii) (a) P(P) = ?
No: of 'P' in the bag = 1
∴ P(P) = 1/9

(b) P(R) = ?
No: of 'R' in the bag = 1
∴ P(R) = 1/9

(c) P(B) = ?
No: of 'B' in the bag = 2
∴ P(B) = 2/9

(e) P(Vowels) = ?

No: of Vowels = 4

∴ P(Vowels) = $\frac{4}{9}$ //

(f) P(Consonants) = ?

No: of Consonants = 5

P(Consonants) = $\frac{5}{9}$

(g) P(x) = ?

No: of 'x' in bag = 0

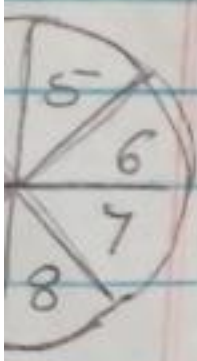
∴ P(x) = 0 //

(h) P(any letter) = ?

No: of 'letters' in bag = 9 //

P(any letter) = $\frac{9}{9}$ = 1 //

4. Here is an Octagonal Spinner 1, 2, 3, 4, ... are marked on it. Write the probabilities of Occurence of the following events.



(a) Spinner lands on 4, P(4) = $\frac{1}{8}$

(b) Spinner lands on an even number,

P(even) = ?

No: of even number = (

(c) Spinner lands on ten, P(10) = ____

There is no '10' in the Spinner

∴ P(10) = 0

(d) Spinner lands on a number less than 4,

P (less than 4) = ____

No: less than 4 on Spinner = 3

P (less than 4) = 3/9 = 1/3

(e) P (less than 9) = ?

No: of less than 9 on Spinner = 8

P (less than 9) = 8/9

(f) P (3 to 6) = ?

No: of from 3 to 6 on Spinner = 4

P (3 to 6) = 4/9

Chapter Check up :-

1. Draw a Scale from 0 to 1 for each of events. Mark the Scale to show the lik probability of each event.

(a) Renu is tossing a coin. what is the probability of it landing on tails?

either a head or a tail. So total n
of chances = 2
In that probality of getting a tail = $\frac{1}{2}$

(b) There are 10 beads in a bag. Only on
bead is red. what is the chance of picking
red bead?

Soln: Total beads in a bag = 10
In that No: of red beads = 1
∴ Probability (red bead) = $\frac{1}{10}$

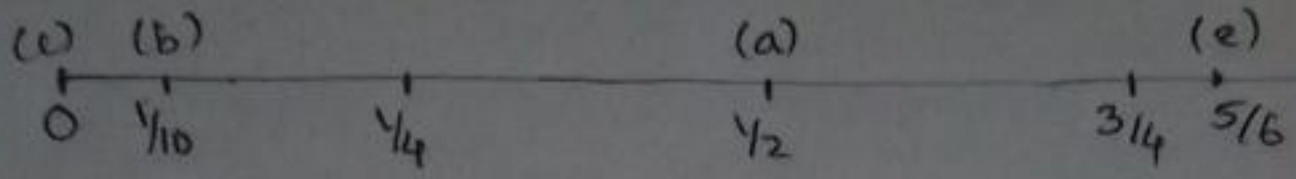
(c) what is the chance of sun rising at mid
tonight?

Soln:- Sun will not rise in midnight. So probability w
Zero.

(d) Asif is holding a brick. what is the proba
That when he lets go of it, the brick will dro

Soln:- When he drops the brick, it will
So the probability will be 1.

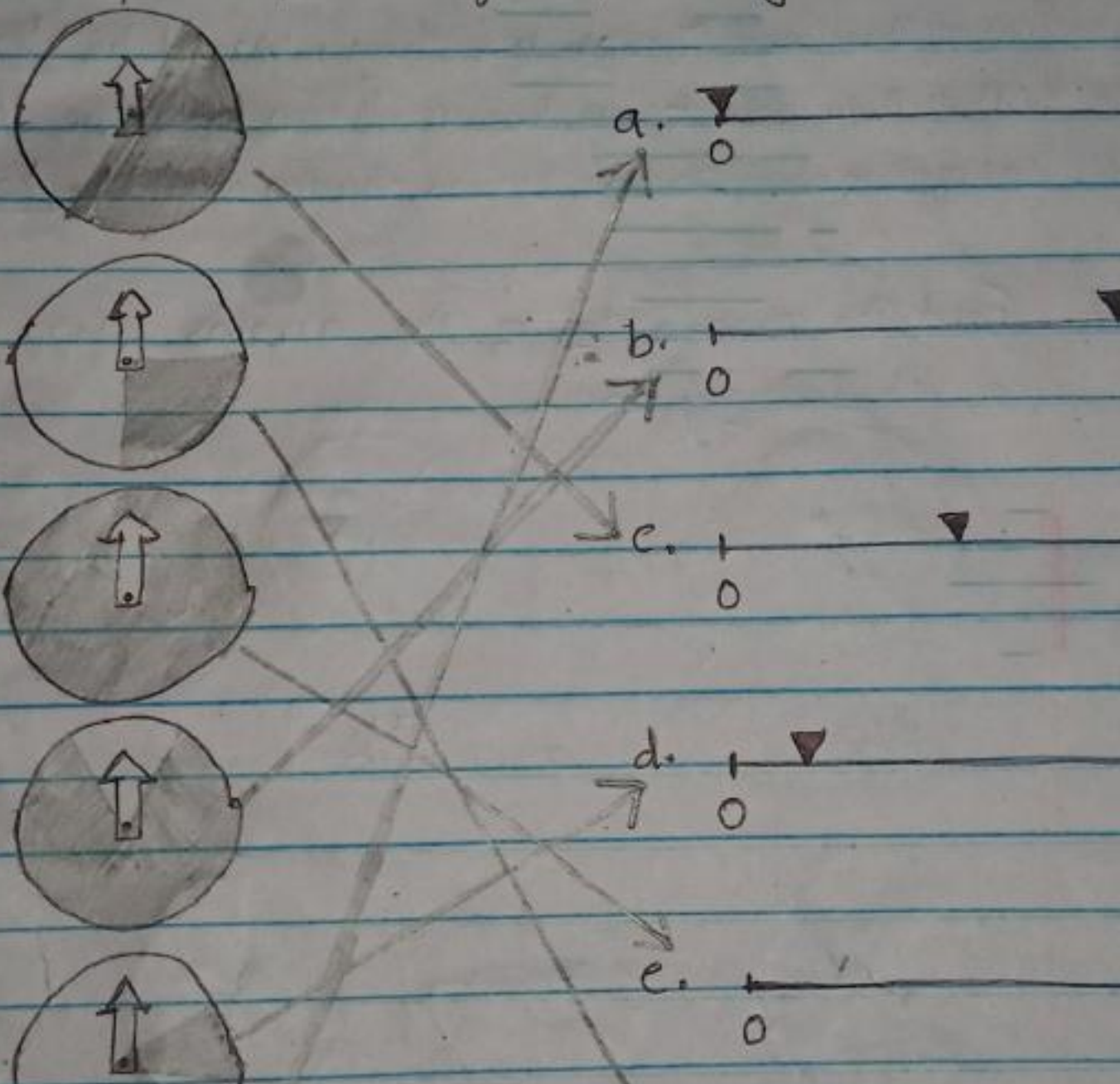
(e) Naaz closes her eyes. what is the chanc
That she will pick a white cube from th



Soln:- There are 6 cubes. In that there 5 white cubes.

$\therefore$ probability (white cubes) = $\frac{5}{6}$

2. To win, the arrow of the spinner must 'land' on shaded part. Match the probability of winning using each spinner with one of the probability scales shown



3. Fill in the blanks.

Karan goes to a funfair and plays . Find
Marble. There are 3 cups. A marble is hidd
under one of them.

(a) Karan's chances of picking the cup wit
marble under it are 1/3

(b) If there are 5 cups, his chance would
(c) If there were 7 cups, his chance would be 1/7
(d) If there were 4 cups, karans chances would be 1/4
(e) If there were 20 cups, karan's chances would be 1/2

4. Find the probability of the arrows stoppin
a shaded region

2/8

3/6

5. find the probability of the arrow stopping on white section in each drawing above. Give your answers as fractions.

6/8

3/6

2/4

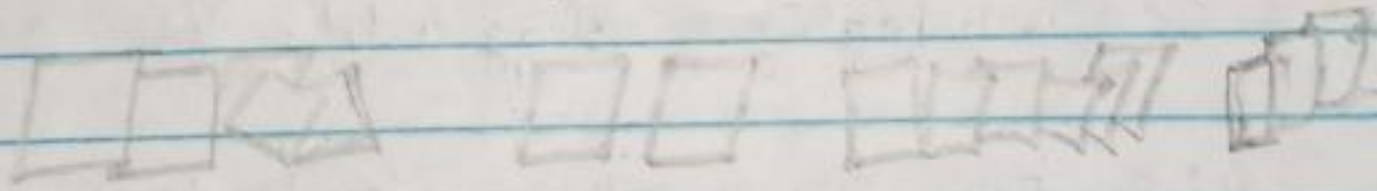
6/10

4/8

2/6

2/4

6. There are two red cards in each set given in the
what is the probability of picking a red card?

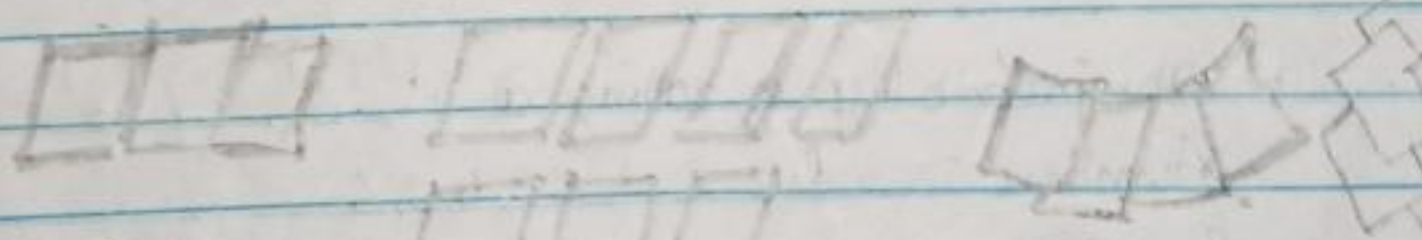


2/5

2/2 = 1

2/6 = 1/3

2/8



2/3

2/4 = 1/2

7. Out of the sets given above, which is the from which you are certain to pick two Cards on the first go?

Soln :- (b) There are only two cards

8. Work out the chance of making these scor a dice.

(a) The probability of rolling a 'six'?

Numbers in a dice = 1, 2, 3, 4, 5, 6

So total = 6

∴ Probability of rolling a '6' = 1/6

(b) Probability of rolling a 'one'

Numbers in a dice = 1, 2, 3, 4, 5, 6

∴ Probability of rolling a '1' = 1/6

(c) The probability of rolling a 'one' or 'six'

Numbers in a dice = 1, 2, 3, 4, 5, 6

Probability of rolling '1' or '6' = 2/6 =

(d) The probability of rolling a '1', '6', or '3

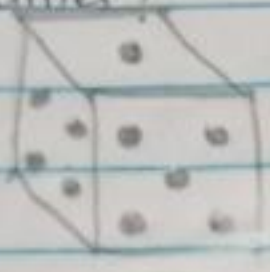
Numbers in a dice = 1, 2, 3, 4, 5, 6

(e) The probability of rolling a 'two', 'six', 'four', or '

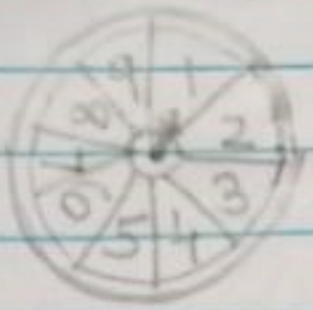
Numbers on dice = 1, 2, 3, 4, 5, 6

Probability of rolling '2', '6', '5', '3' = 4/6 =

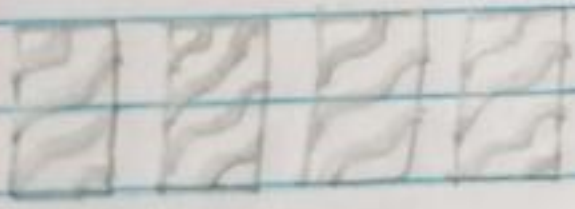
9. What are Rima's chances of winning in each of th games?



Rima's probability of picking the winning number is 1/6



Rima's probability of picking the w number is 1/9



If there is only one ace, Rima's p of picking the ace is 1/4

19	7	22	6	11	32	10
37	17	2	29	3	8	16
4	28	5	18	14	33	25

If the shaded numbers are l numbers, Rima's probability The lucky number is 1/6

Rima's probability of picking th number is 1/16