~~Day - 5~~

Day - 64

Ch - 10

18-10-2021

~~9-10=20~~

Course overview chart

Day-1- Introduction to lines and angles, Ex: 10.1 (1 to 4 bits)

Day-2- Ex: 10.1 (5 to 10 bits)

Day-3 - Pairs of lines, Ex: 10.2 (1st to 3rd)

Day-4- Ex: 10.2 (4th to 11th sums)

Day-5= Revision

Flow chart

Mathematics

↓

Geometry

↓

Lines and angles

Ex-10.1

Date __/__/__

Page _____

1 Which pair of angles are complementary?

a 38° and 52°

38° and 52° are complementary angles because their sum,

$38^\circ + 52^\circ = 90^\circ$ The given pair of angles are complementary

b 25° and 55°

25° and 55° are not complementary angles because their sum,

$25^\circ + 55^\circ = 80^\circ$

The given pair of angles are not complementary

2 Identify the following angles as complementary, supplementary or equal

a 87° and 93°

87° and 93° are supplementary angles because their sum,

$87^\circ + 93^\circ = 180^\circ$

The given pair of angles are supplementary

b 23° and 23°

23° = 33°

The given pair of angles are equal.

c 33° and 57°

33° and 57° are complementary angles because their sum,

33° + 57° = 90°

The given pair of angles are complementary

d 112° and 68°

112° and 68° are supplementary angle because their sums,

112° + 68° = 180°

The given pair of angles are supplementary.

Date __/__/__
Page _____

3 Write the complements of the following angles:

a Complement of $43^\circ = 90^\circ - 43^\circ = 47^\circ$

b Complement of $27^\circ = 90^\circ - 27^\circ = 63^\circ$

c Complement of $35^\circ = 90^\circ - 35^\circ = 55^\circ$

d Complement of $62^\circ = 90^\circ - 62^\circ = 28^\circ$

e Complement of $88^\circ = 90^\circ - 88^\circ = 2^\circ$

f Complement of $72^\circ = 90^\circ - 72^\circ = 18^\circ$

g Complement of $65^\circ = 90^\circ - 65^\circ = 25^\circ$

4 Write the supplements of the following angles:

a Supplement of $115^\circ = 180^\circ - 115^\circ$
$= 65^\circ$

b Supplement of $123^\circ = 180^\circ - 123^\circ$
$= 57^\circ$

c Supplement of $67^\circ = 180^\circ - 67^\circ$
$= 113^\circ$

d Supplement of $10^\circ = 180^\circ - 10^\circ$
$= 170^\circ$

e Supplement of $140^\circ = 180^\circ - 140^\circ$
$= 40^\circ$

f Supplement of $90^\circ = 180^\circ - 90^\circ$
$= 90^\circ$

g Supplement of $40^\circ = 180^\circ - 40^\circ$
$= 140^\circ$

H.W sums

2

e 90° and 90°

~~90° and 90° are supplementary angles because their sum,~~

$90° + 90° = 180°$

$90° = 90°$

The given pair of angles are equal

~~The given pair of angles are supplementary~~

f 4° and 86°

4° and 86° are complementary angles because their sum,

~~$12° + 68° = 180°$~~

$4° + 86° = 90°$

The given pair of angles are ~~sa~~complementary

g 12° and 168°

12° and 168° are supplementary angles ~~be~~ because their sum,

$12° + 168° = 180°$

The given pair of angles are supplementary.

Date __/__/__
Page _____

h 210° and 210°
210° = 210°

The given pair of angles are equal

3
h Complement of 3° = 90° − 3° = 87°
i Complement of 11° = 90° − 11° = 79°
j Complement of 42° = 90° − 42° = 48°

4
h Supplement of 112° = 180° − 112°
= 68°
i Supplement of 36° = 180° − 36°
= 144°
j Supplement of 135° = 180° − 135°
= 45°

Day - 65

Ex - 10.1

20-10-21

5- The difference between 2 complementary angles = 22°

Let one angle be x°

Then its complement (other angle) $= 90^\circ - x^\circ$

Difference of 2 complementary angle $= x^\circ - (90^\circ - x^\circ)$

$= 22^\circ$

$x^\circ - 90^\circ + x^\circ = 22^\circ$

$2x^\circ = 22^\circ + 90^\circ = 112^\circ$

$x^\circ = 112^\circ \div 2 = 56^\circ$

$\therefore x^\circ = 56^\circ$

$\therefore$ Other angle $= 90^\circ - 56^\circ = 34^\circ$

6 Find the pair of supplementary angles in the following figure

a $30^\circ, 150^\circ$

30° and 150° are supplementary angles, because, their sum,

$150^\circ + 30^\circ = 180^\circ$

$\therefore$ The given pair of angles are supplementary.

Date __/__/____
Page _____

b $60^\circ, 110^\circ$

60° and 110° are not supplementary angles, because their sum,

$110^\circ + 60^\circ = 170^\circ$

∴ The given pair of angles are not supplementary

~~Find the pair of supplementary angles in the following figure~~

c $25^\circ, 160^\circ$

160° and 25° are not supplementary angles, because their sum,

$160^\circ + 25^\circ = 185^\circ$

∴ The given pair of angles are not supplementary

d $45^\circ, 45^\circ$

45° and 45° are not supplementary angles, because their sum,

$45^\circ + 45^\circ = 90^\circ$

∴ The given pair of angles are not supplementary.

7 Lines AB and CD intersect ~~and~~ at O

$\angle DOA (\angle 1) = 170^\circ$

$\angle BOC (\angle 3) = 170^\circ$

$\angle 1 + \angle 2 = 180^\circ$

~~$\angle$ Pro~~ $\angle DOA$ and $\angle AOC$ are linear pair

$\angle DOA + \angle AOC = 180^\circ$

$\angle AOC = 180^\circ - \angle DOA = 180^\circ - 170^\circ = 10^\circ$

$\therefore \angle AOC (\angle 2) = 10^\circ$

$\therefore \angle BOD (\angle 4) = 10^\circ$

8 Name the adjacent angles in the following figures

a Adjacent angles:

$\angle AOB$ adjacent to $\angle BOC$,

$\angle BOC$ adjacent to $\angle COD$,

$\angle AOC$ adjacent to $\angle DOC$,

$\angle AOB$ adjacent to $\angle BOD$

b Adjacent angles:

$\angle POQ$ adjacent to $\angle QOS$

Date __/__/____
Page _____

c **Adjacent angles:**

∠SXT adjacent to ∠MON,
∠MON adjacent to ∠NOK,
∠NOK adjacent to ∠KOL,
∠KOL adjacent to ∠LOM,
∠MOK adjacent to ∠KON

9 **Find the measure of x in the following figures:**

a The given 2 angles lie on straight line. So they are linear pair.

Sum of the 2 angles on straight line = 180°

$$\angle 1 + \angle 2 = 180^\circ$$
$$(x + 30^\circ) + (x^\circ) = 180^\circ$$
$$x + 30^\circ + x^\circ = 180^\circ$$
$$2x^\circ + 30^\circ = 180^\circ$$
$$2x^\circ = 180^\circ - 30^\circ = 150^\circ$$
$$x^\circ = 150^\circ \div 2 = 75^\circ$$
$$\therefore x = 75^\circ$$

b Sum of angles around a point form complete angle

Sum of given 4 angles = 360°

$\angle 1 + \angle 2 + \angle 3 + \angle 4 = 360°$

$x° + 2x° + 3x° + 4x° = 360°$

$10x° = 360°$

$x° = 360° \div 10 = 36°$

$\therefore x° = 36°$

c The given angles are vertically opposite angles and hence they are equal.

$\angle 1 = x, \angle 2 = 35°$

$\angle 1 = \angle 2$

$\therefore x = 35°$

d The given 2 angles lie on the straight line and they are a linear pair

$\angle 1 + \angle 2 = 180°$

$2x° + 3x° = 180°$

$5x° = 180°$

$x° = 180° \div 5 = 36°$

$\therefore = 36°$

Date __/__/____
Page _____

10 The larger angle = 20° more than the smaller angle

Let the smaller angle be x°

Larger angle = $20 + x$°

But the angles are supplementary

$\angle 1 + \angle 2 = 180°$

$\therefore x° + (20 + x)° = 180°$

$x° + 20 + x° = 180°$

$2x° + 20 = 180°$

$2x° = 180° - 20 = 160°$

$x° = 160° \div 2 = 80°$

$\therefore$ Smaller angle = 80° and larger angle

$= 80° + 20° = 100°$

21-10-21 ~~Day-66~~

Ex-10.2

1 $l \parallel m$ and t is the transversal.

$\angle 7 = 133°$

$\angle 7 = \angle 3$

$\angle 3 = 133°$

$\angle 7 = \angle 6$ and $\angle 3 = \angle 4$

$\therefore \angle 7 = \angle 6 = \angle 3 = \angle 4 = 133°$

$\angle 4$ and $\angle 1$ are linear pair

$\angle 4 + \angle 1 = 180°$

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

$\angle 1 = 180^\circ - 133^\circ = 47^\circ$

$\angle 1$ and $\angle 2$ are corresponding angles

$\angle 1 = \angle 2 = 47^\circ$

$\angle 1 = \angle 8$ and $\angle 2 = \angle 5$

$\angle 1 = \angle 2 = \angle 5 = \angle 8 = 47^\circ$

2 Write the measure of the x in the following figure

a $\ell \parallel m$

$\ell \parallel m$ and t is the transversal

x° and 60° are corresponding angles

$x^\circ = 60^\circ$

b $\ell \parallel m$

$\ell \parallel m$ and t is the transpeal

x° and 105° are vertically opposite angles

$x = 105^\circ$

c $\ell \parallel m$

$\ell \parallel$ and t is the transversal

x° and 40° are alternate exterior angles

$x^\circ = 40^\circ$

Date __/__/____
Page _____

3 Find the value of x in the following figure

a x and $3x+4$ are linear pair.

$\angle 1 + \angle 2 = 180^\circ$

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

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

$4x + 4 = 180^\circ$

$4x = 180^\circ - 4$

$4x = 176^\circ$

$x = 176^\circ \div 4 = 44^\circ$

$\therefore x = 44^\circ$

c $\angle 1 = x^\circ$, $\angle 2 = 160^\circ$

$\angle 1$ & $\angle 2$

$x^\circ = 160^\circ$

H. W sums

3

b x, $2x$ and $3x - 6$ are on the straight line.

$\angle 1 + \angle 2 + \angle 3 = 180^\circ$

$x + 2x + (3x - 6) = 180^\circ$

$6x - 6 = 180^\circ$

$6x = 180^\circ + 6$

$6x = 186^\circ$

$x = 186^\circ \div 6 = 31^\circ$

$\therefore x = 31^\circ$

d In the figure, let a and b lee the angles on either side of 120°

$\angle a = x$

$\angle b = 2x$

a, 120° and b lie on the straight line.

$\angle a + 120° + \angle b = 180°$

$x + 120° + 2x = 180°$

$3x + 120 = 180°$

$3x = 180° - 120$

$3x = 60°$

$x = 60° \div 3 = 20°$

$\therefore x = 20°$

22-10-21 Day-67

Ex-10.2

4 $\angle 3 = 42°$

$\angle 3 \cong \angle 2$

$\angle 2 = y = 42°$

$\angle 1 + \angle 2 = 180°$

$x + y = 180°$

$x + 42° = 180°$

$x = 180° - 42°$

$x = 138°$

$\therefore x = 138°$ and $y = 42°$

Date __/__/____
Page _____

5. AB || CD and PQ is the transversal

$\angle CRQ = 148^\circ$

$\angle CRS + \angle CRQ = 180^\circ$

$\angle CRS = 180^\circ - \angle CRQ$

$\angle CRS = 180^\circ - 148^\circ$

$\angle CRS = 32^\circ$

$\angle ASP = \angle CRS$

$\angle ASP = 32^\circ$

$\angle PSB + \angle ASP = 180^\circ$

$\angle PSB = 148^\circ$, $\angle BSR = 32^\circ$

6. In the figure, $\angle a = 110^\circ$

$x = 180^\circ - a = 180^\circ - 110^\circ$

$x = 70^\circ$

$\angle c = \angle x = 70^\circ$

$\angle c = 70^\circ$

$\angle c = \angle y = 70^\circ$

$\angle d = 180^\circ - \angle y$

$\angle d = 180^\circ - 70^\circ$

$\angle d = 110^\circ$

$\angle d = \angle b = 110^\circ$

$\angle b = 110^\circ$

$\angle e = \angle y = 70^\circ$

$\angle e = 70^\circ$

$\therefore \angle a = 110^\circ$, $\angle b = 110^\circ$, $\angle C = 70^\circ$

$\angle d = 110^\circ$, $\angle e = 70^\circ$

9 In the figure given below, find x if AB||CD and CD||EF

7 AB||CD and CD||EF

$\angle ABC = 52^\circ$, $\angle BCE = 25^\circ$

AB||CD, BC is transversal

$\angle ABC = \angle BCD = 52^\circ$

$\angle BCD = 52^\circ$

$\angle BCD = \angle BCE + \angle ECD$

$52^\circ = 25^\circ + \angle ECD$

$\angle ECD = 52^\circ - 25^\circ$

$\angle ECD = 27^\circ$

CD||EF, EC is the transversal

$\angle ECD + x = 180^\circ$

But from ---1, we have $\angle ECD = 27^\circ$

$\therefore 27^\circ + x = 180^\circ$

$x = 180^\circ - 27^\circ$

$\therefore x = 153^\circ$

Date __/__/__
Page _____

8 PQ || RS
$\angle QAC = 65^\circ$, $\angle ABR = 100^\circ$ (given)
Let $\angle ACB = x$
PQ || RS and AC is the transversal
$\angle QAC = 65^\circ = \angle ACB$
$x = 65^\circ$
$\therefore \angle ACB = 65^\circ$

9 The pair of vertical angles are $\angle ERQ$ and $\angle KRZ$

10 A pair of vertical angles are $\angle YES$ and $\angle SEH$

11 A pair of vertical angles are $\angle YAE$ and $\angle LAS$