MATHEMATICS

Q.1- How many lines can pass through a given single point.

Ans- (d) Infinite

Explaination-

A line can be defined as a straight set of points that extend in opposite directions. It has no ends in both directions and has no thickness. It is one-dimensional. Therefore, an infinite number of lines can pass through one given point.

Q.2- How many lines can pass through two given points.

Ans- (b) One

Explaination-

Only one line can be formed through two given points.

Q.3- If a point C lies between two points A and B such that AC = BC, then which of these is true?

Ans- (c) AB=2AC

Explaination-

According to Euclid's axioms, we know that when equals are added to equals, the wholes are equal.

Given: AC = BC

Adding AC on both sides, we get

$\Rightarrow$ AC + AC = BC + AC (BC + AC coincides with AB)

$\Rightarrow$ 2 AC = AB

$\Rightarrow$ AC = 1/2 AB

Q.4- The whole is ………… than the part. (Fill in the blank)

Ans – (a) Greater

Explaination-

According to Euclid , The whole is greater than the part .

Q.5- In the given figure, if AC = BD then which if these is true?

Ans- (d) Double

Explaination-

According to Euclid's axioms, we know that when equals are subtracted from equals, the remainders are equal.

Given: AC = BD

Hence, AB + BC = BC + CD

[Since Point B lies between A and C; Point C lies between B and D]

Subtracting BC from both sides,

$\Rightarrow$ AB + BC - BC = BC + CD - BC

$\Rightarrow$ AB = CD

Q.6- One day, Maths teacher draw a figure on the blackboard in which lines XY and MN intersect at O such that $\angle POY = 90°$ and a : b = 2 : 3.

He marked $\angle XON$ = c then he draws the bisector OQ of $\angle XON$.
The value of 'a' is-
Ans- (d) $36°$

Explaination-

Given: $\angle POY = 90°$ and a : b = 2 : 3.

If two lines intersect with each other, then the vertically opposite angles formed are equal.

Line OP is perpendicular to line XY. Hence $\angle POY = \angle POX = 90°$

$\angle POX = \angle POM + \angle MOX$

$90° = a + b$ ….(1)

Since a and b are in the ratio 2: 3 that is,

a = 2x and b = 3x ….(2)

Substituting (2) in (1),

a + b = 90°

2x + 3x = 90°

5x = 90°

x = 90°/5 = 18°

a = 2x = 2 × 18°

a = 36°

Q.7- One day, Maths teacher draw a figure on the blackboard in which lines XY and MN intersect at O such that ∠POY = 90° and a : b = 2 : 3.

He marked ∠XON = c then he draws the bisector OQ of ∠XON.
The value of 'b' is-
Ans- (b) 54⁰

Explaination-

Line OP is perpendicular to line XY. Hence ∠POY = ∠POX = 90°

∠POX = ∠POM + ∠MOX

90° = a + b ….(1)

Since a and b are in the ratio 2 : 3 that is,

a = 2x and b = 3x ….(2)

Substituting (2) in (1),

a + b = 90°

2x + 3x = 90°

5x = 90°

x = 90°/5 = 18°

a = 2x = 2 × 18°

a = 36°

b = 3x = 3 × 18°

b = 54°

Q.8- One day, Maths teacher draw a figure on the blackboard in which lines XY and MN intersect at O such that ∠POY = 90° and a : b = 2 : 3.

He marked ∠XON = c then he draws the bisector OQ of ∠XON.
The value of 'c' is-
Ans – (a) 126º

Explaination-

Line OP is perpendicular to line XY. Hence ∠POY = ∠POX = 90°

∠POX = ∠POM + ∠MOX

90° = a + b ….(1)

Since a and b are in the ratio 2 : 3 that is,

a = 2x and b = 3x ….(2)

Substituting (2) in (1),

a + b = 90°

2x + 3x = 90°

5x = 90°

x = 90°/5 = 18°

a = 2x = 2 × 18°

a = 36°

b = 3x = 3 × 18°

b = 54°

Also , ∠MOY= ∠MOP + ∠POY

= a + 90°

= 36° + 90° = 126°

Lines MN and XY intersect at point O and the vertically opposite angles formed are equal.

∠XON = ∠MOY

c = 126°

Q.9- One day, Maths teacher draw a figure on the blackboard in which lines XY and MN intersect at O such that ∠POY = 90° and a : b = 2 : 3.

He marked ∠XON = c then he draws the bisector OQ of ∠XON.
The value of ∠QOY is-
Ans-(c) 117⁰

Explaination- Same as in Q-7

Q.10- One day, Maths teacher draw a figure on the blackboard in which lines XY and MN intersect at O such that ∠POY = 90° and a : b = 2 : 3.

He marked ∠XON = c then he draws the bisector OQ of ∠XON.
The value of ∠QON is-
Ans- (d) 297⁰

Explaination- Same as in Q-7