**Co-ordinate geometry and Straight line Solutions**

1. **Ans: a**

A = (x1, y1) = (3, 6), B = (x2 , y2) = (12, −3)

The ratio in which x − axis divides AB is  i.e.,  i.e., 2 : 1

1. **Ans: b**
2. **Ans: c**

Line joining (3, 0) and (0, 4) subtend an angle 90° at (0, 0).

1. **Ans**: b

Ares of ΔPQR = 

1. **Ans: c**

A (1, 2), B (2, 3) , C ( x, 4)

Area of Δ ABC is 40 sq. unit ⇒ ⇒ 3 – x = ± 80 ⇒ x = – 77, 83

1. **Ans**: **b**

A (–1 , 2), B (4, 1) , C (7, 16)

4th Vertex D = (–1 –4 + 7, 2 –1 + 16) = (2, 17)

Area of ABCD = 

1. **Ans: c**

Let P (x, y) be any point on the locus, A ≡ (0, 7), B ≡ (0, 1)

Given PA = 3PB ⇒ PA2 = 9PB2 ⇒ x2 + (y – 7)2 = 9 [x2 + (y – 1)2]

x2 + y2 – 14y + 49 = 9 [ x2 + y2 – 2y + 1]⇒ 8x2 + 8y2 – 4y – 40 = 0 ⇒ 2x2 + 2y2 – y – 10 = 0.

1. **Ans: c**

The required line passes through the midpoint of A (3, −4), B (5, 2).

i.e., it passes through (4, −1).

Equation of the line is of the form.

This passes through (4, −1)



1. **Ans: c**
2. **Ans: c**



1. **Ans: c**

We have, (1, −3), 2y − 3x − 4 = 0

Required distance 

1. **Ans: b**



⇒ 39 x – 52y + 91 = – (60 x + 25 y –10); one of the bisector is 11x – 3y + 9 = 0

1. **Ans: a**

Firstly, make the constant terms (c1, c2) positive 3x – 4y + 7 = 0 and –12x – 5y + 12 = 0

⇒ a1 a2 + b1 b2 = (3) (–12) + (–4) (–5) = – 36 + 20 = –16

Hence : –“ sign the obtuse bisector

⇒ obtuse bisector is 

⇒ 13 (3x – 4y + 7) = –5 ( –12x – 5y + 2)

⇒ 21 x + 77y – 101 = 0 is the obtuse angle bisector

1. **Ans: d**

The equation of the line passing through (5, 0) and (0,3) is 3x + 5y – 15=0

Length of the perpendicular from (4, 4) to the line 3x + 5y – 15=0 is = =

1. **Ans: c**

Slope of the line 3x + y = 3 is -3

Required line slope is 1/3

Equation of required line passing through (2, 2) with slope 3 is 3(y – 2) = x - 2 => x –3y = - 4

∴y intercept of the required line 4/3

1. **Ans: c**

Since given lines perpendicular so 

1. **Ans: b**

Slope of the line y = 3x -1 is 3

Required line slope is -1/3

Equation of required line passing through (1, 2) with slope 3 is -3(y – 2) = x - 1 => x + 3y – 7 = 0

1. **Ans: a**

Slope of the line 3x - 4y + 2 = 0 is 3/4

Required line slope is 3/4

Equation of required line passing through (-2, 3) with slope 3 is 4(y – 3) = 3(x + 2)

=> 3x - 4y + 18 = 0

1. **Ans: c**

If a line cuts off equal intercepts on the co-ordinate axes then equation of the lines is x + y = a

So slope of the line is -1

∴ Angle made by this line with the positive direction of X-axis is 1350

1. **Ans: a**

A ≡ (3, 4), B ≡ (a , 2)

Now, 



∴ a = 1 or a = 5.

1. **Ans: d**

The area of the triangle = 0



1. **Ans: d**
2. **Ans: a**
3. **Ans: c**

Equation of the line making equal intercepts on the axes will be of the form 

This must pass through (2, 4)



∴ the equation is x + y = 6

1. **Ans: b**



1. **Ans: c**

M(h, k) is the foot of the perpendicular from P(2, 3) onto x + y − 3 = 0.

It is given by

⇒ h − 2 = k − 3 = −1 ⇒ h =,1, k = 2

1. **Ans: b**

Image of (x1, y1) along y = x is (y1, x1)

Image of (x1, y1) along x − axis ( y = 0) is (x1, −y1)

Now image of (3, 5) along y = x is (5, 3)

Image of (5, 3) along x − axis is (5, −3)

1. **Ans: a**

Reflection (h, k) of the point (4, −13) about 5x + y + 6 = 0 is given by



1. **Ans: b**

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1. **Ans: b**

Use m : n = –L11 :L22

1. **Ans: c**

; use = 

1. **Ans: b**

Distance =

1. **Ans: a**

Length = 

1. **Ans: a**

Let ABC be a isosceles triangle With base BC is on x axis

Slope of AC and AB are equal and opposite sign

And slope of BC=0[x-axis]

Sum of the slopes of 3 sides=0

1. **Ans: a**

1. **Ans: c**

Distance =

1. **Ans: c**

Equation of the required line is of the form 3x – y + k = 0

Line passes through (1, 2) then 3(1) - -1(2) + k = 0 => k = -1

Required line is 3x – y - 1=0

1. **Ans: a**

One of the diagonal passing through the points (0, 0) and (1, 1) is y = x

Another diagonal passing through the points (1, 0) and (0, 1) is x + y – 1 = 0

1. **Ans: b**
2. **Ans: b**

Reflection of the point (4, 1) about the line *y* = *x* is (1, 4)

Translation through a distance 2 units along the positive *x*-axis is (1 + 2, 4) = (3, 4)

1. **Ans: b**

Ratio =

1. **Ans: d**

We know that the equation of a line making intercepts *a* and *b* with *x*-axis and *y*-axis, respectively, is given by

Here we have which give *a* = 2 and *b* = 4.

Therefore, the required equation of the line is given by 2*x* + *y* – 4 = 0

1. **Ans: a**

O = 3G – 2S => S =

1. **Ans: d**

The lines are x – 3y = 0 and 3x + y = 0 are perpendicular and intersection is (0, 0)

The line 4x + 3y = 5 is the equation of hypotenuse of the triangle.

But given line 3x – 4y = 0 is perpendicular to 4x + 3y = 5and passes through origin.

1. **Ans: c**

Slope of PQ = 1

Mid point of PQ = (3, 2)

Slope of required line is -1

Equation of required line is y – 2 = -1( x – 3) => x + y – 5 = 0

1. **Ans: b**

Slope of AB = 1 => Angle BAX = 450

If AC is the new position of the line AB then Angle CAX = 450 + 150 = 600

Thus equation is y = tan600(x – 2)

1. **Ans: c**

From the equation

1. **Ans: b**

=>2ac = ab + bc =>

1. **Ans: d**

m1 = -cot850, m2 = -cot400, tanθ=tan(500 - 50) = tan450

1. **Ans: c**
2. **Ans: d**

Midpoint of is = (1, 2)

Slope of line joining (1, 2) and (-3, 6) = tanθ =

1. **Ans: b**

Area = .4.5 = 10

1. **Ans: b**

Area =

1. **Ans: c**

Mid point of PR = mid point of AB = (4, -1)

1. **Ans: a**

Givn that c = -3, m = 3/5

Equation is 5y – 3x + 15 = 0

1. **Ans: b**

ratio =

1. **Ans: b**

3G – A – B = (6 – 4 + 2, 21 – 8 – 6) = (4, 7)

1. **Ans: a**

x + y = 0 and x – y = 0 are perpendicular

Hence circumcentre is lies on the line x – 7 = 0

1. **Ans: d**

A = (-1, 2), B = (3, 2), C = (1, 1)

Mid point of the third side = A + B - C = (1, 3)

Centroid of the triangle = centroid of the mid points of the sides of the triangle =

1. **Ans: 4**