

## Linear Programming - Class XII

### Past Year JEE Questions

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#### Questions

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##### Question: 01

The sides of a triangle are  $3x + 4y$ ,  $4x + 3y$  and  $5x + 5y$  where  $x, y > 0$  then the triangle is

- A. right angled
- B. obtuse angled
- C. equilateral
- D. none of these

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#### Solutions

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##### Solution: 01

##### Explanation

Let  $a = 3x + 4y$ ,  $b = 4x + 3y$

and  $c = 5x + 5y$

as  $x, y > 0$ ,  $c = 5x + 5y$  is the largest side

$\therefore C$  is the largest angle. Now

$$\cos C = \frac{(3x+4y)(4x+3y)(5x+5y)}{2(3x+4y)(4x+3y)}$$

$$= \frac{-2xy}{2(3x+4y)(4x+3y)}$$

$\therefore C$  is obtuse angle  $\Rightarrow \triangle ABC$  is obtuse angled