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2026-27

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CLAT

LOGICAL REASONING
QUANTITATIVE APTITUDE

CHAPTER WISE SUMMARY
CHAPTER WISE QUESTIONS WITH SOLUTIONS

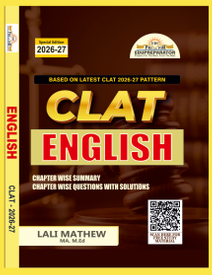
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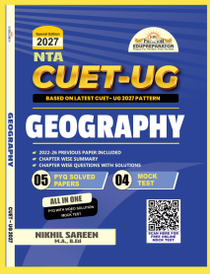


Mr. Nikhil Sareen, a distinguished academician in Geography, Political Science, and Current Affairs, holds an impressive academic portfolio with an MA in Geography, MA in Political Science, MBA in International Business, and an MCA. With over a decade of teaching experience, he excels in preparing students for competitive exams, including CUET, CLAT, CBSE, and UPSC. Guiding UPSC aspirants for ten years, he provides unparalleled insights into Geography. Simultaneously, Mr. Sareen has contributed to the academic journey of Class 11 & 12 (CBSE) students over the last eight years, showcasing proficiency in Geography and Political Science. His commitment extends beyond standard curriculum requirements, dedicating himself to strategic guidance for CLAT and other competitive exams, consistently leading students to success.

















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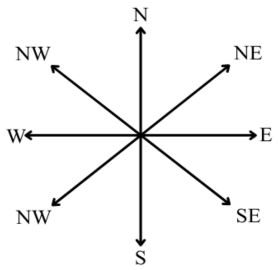
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2 DIRECTIONS

THEORY AND CONCEPTS



There are major directions, everyone must understand carefully.
These directions will remain same from any point or any situation.
For example, from any distance or direction North will remain North, South will be South & so on.

Shortest Distance between 2 points or places

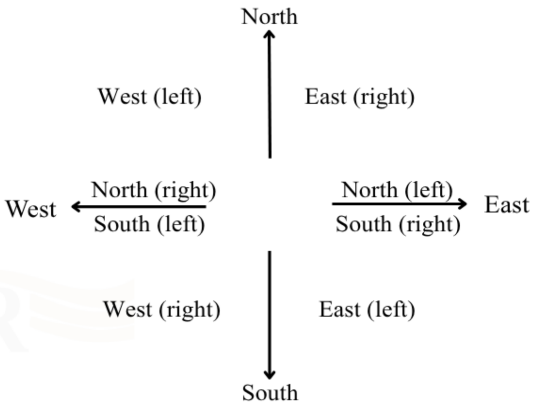
$H^2 = P^2 + B^2$

Also known as Pythagoras theorem, which you guys have already studied in your previous classes.

Rotation (Clockwise & Anticlockwise)

- Form a table
- Note down the respective rotations in their respective columns
- Total both the sides
- Mark the deviation in respective column
- Rotate one according to the initial direction already given in the question.

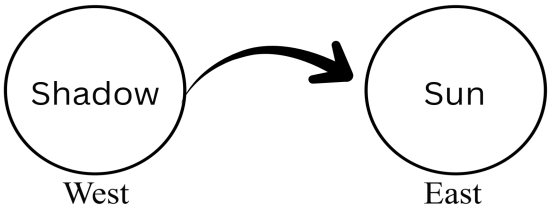
Directions will not change as we've drawn earlier but their respective rights & lefts may differ as shown in the above figure.



Shadow

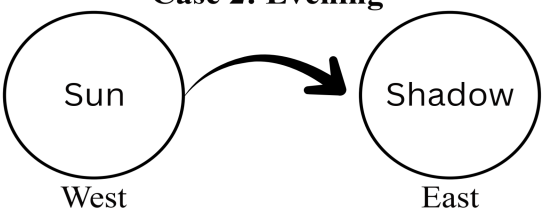
Concept of shadow is broadly divided into 2 parts.

Case 1: Morning



Here, sun & shadow are fixed & cannot move from their respective sides.
Any moving means, sun rises from east & shadow will automatically form in the opposite direction, i.e. west.

Case 2: Evening

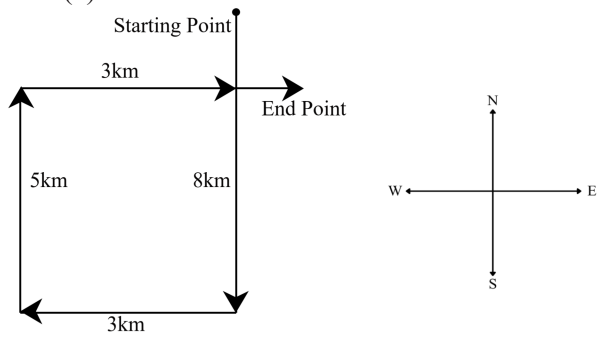


Similarly here also sun & shadow are fixed at their respective positions & if you see clearly they both remain at their places because at evening, sun is in the west direction.

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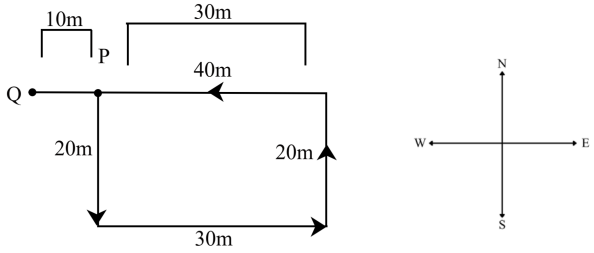
SOLUTIONS

1. Ans: (b)



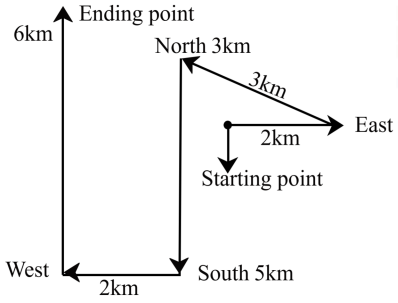
So, with respect to the starting point Ashok was facing South or was in the South direction.

2. Ans: (c)



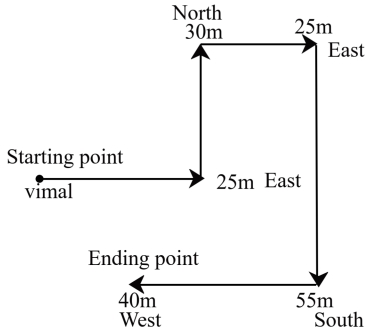
So, as per the above diagram, we can clearly see that point P is in the East of point Q.
And distance b/w them is 10m.
Final answer will be 10m East.

3. Ans: (c)



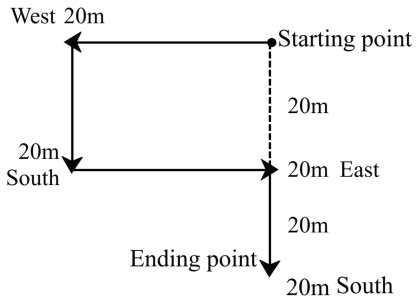
As per the figure, it's clearly visible that Roy is in the North–West direction from the starting point.

4. Ans: (d)



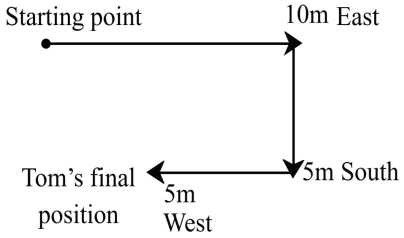
Vimal was facing North & before started walking, he turned to his right. i.e. in the East direction & then he started walking.
Then, as the diagram shows that from the starting point, Vimal is in the South–East direction now.

5. Ans: (a)



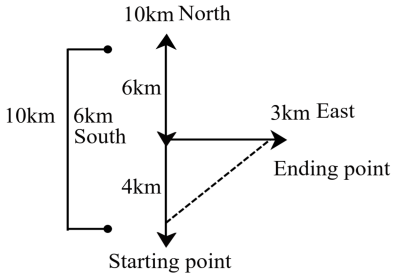
The figure clearly shows that from the starting point, Q is 40m away.

6. Ans: (b)



So with the help of the above diagram, we can clearly see that point P is in the North–West direction from Tom's final position.

7. Ans: (b)



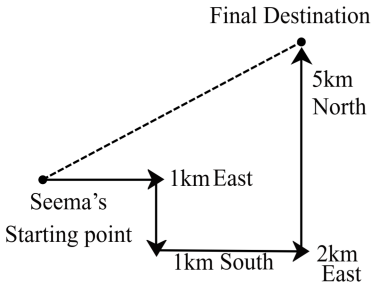
So, we need to find the distance between his initial & final position here.
By applying Pythagoras theorem, or by we can conclude the distance required

$$H^2 = P^2 + B^2$$

$$H^2 = (4)^2 + (3)^2$$

$$\Rightarrow \sqrt{16+9} = \sqrt{25} = 5 \text{ km}$$

8. Ans: (b)



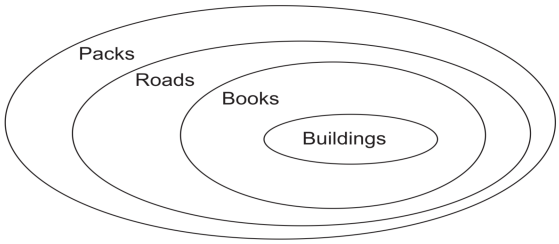
Required distance,
By using Pythagoras Theorm or by shortest distance method.

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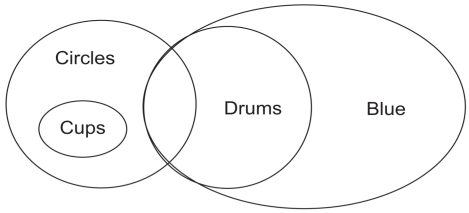
$\Rightarrow d = 14\%\ of\ 140 \quad (b)$

20. Ans : (c) Only hockey = c $b + e + f + c = 48$
W.K.T., $12 + 18 + 10 + c = 48$
$c = 8 \quad (c)$

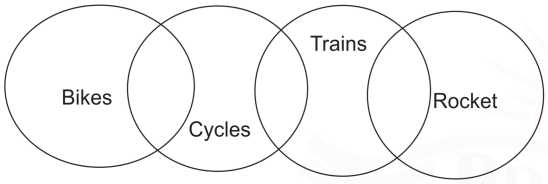
21. Ans : (a)



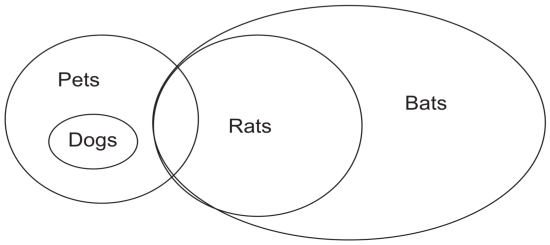
22. Ans : (b)



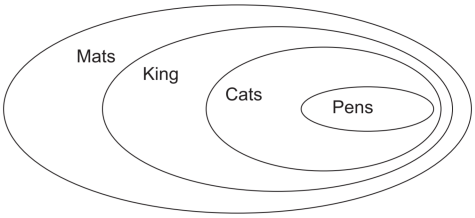
23. Ans : (e)



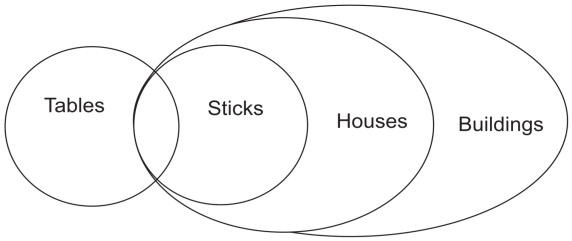
24. Ans : (c)



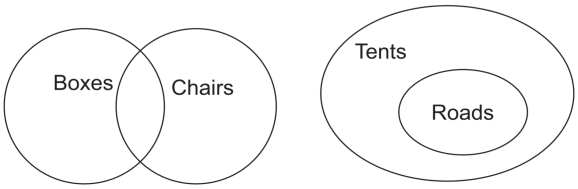
25. Ans : (d)



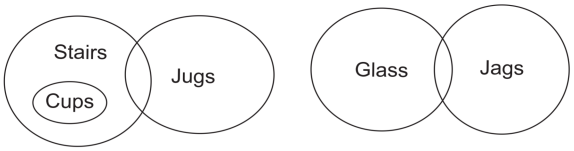
26. Ans : (a)



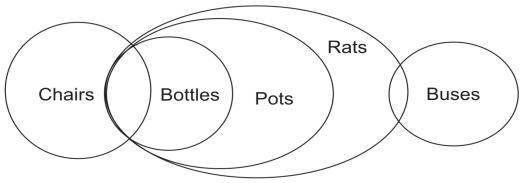
27. Ans : (b)



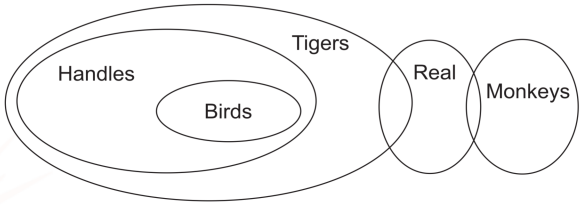
28. Ans : (c)



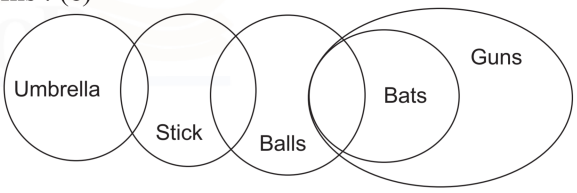
29. Ans : (e)



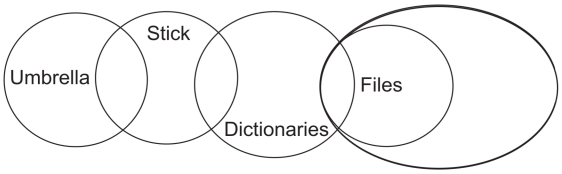
30. Ans : (b)



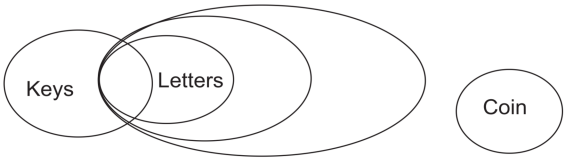
31. Ans : (b)



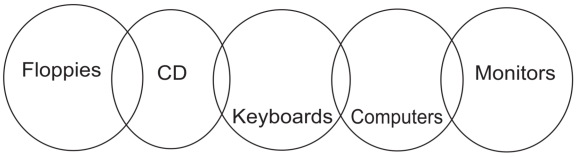
32. Ans : (a)



33. Ans : (e)



34. Ans : (b)



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2 PROFIT & LOSS

Introduction

Profit and Loss deals with buying and selling of goods. It is an important application of percentage in CUET Quantitative Aptitude. Questions are based on cost price, selling price, profit, loss, and discounts.

Basic Terms

Cost Price (CP): Price at which an item is purchased
Selling Price (SP): Price at which an item is sold
Profit (Gain): SP > CP
Loss: CP > SP

Profit and Loss Formulas

$$\text{Profit} = \text{SP} - \text{CP}$$

$$\text{Profit \%} = \frac{\text{Profit}}{\text{CP}} \times 100$$

$$\text{Loss} = \text{CP} - \text{SP}$$

$$\text{Loss \%} = \frac{\text{Loss}}{\text{CP}} \times 100$$

Selling Price Formulas

SP at profit

$$\text{SP} = \text{CP} \times \left(1 + \frac{\text{Profit \%}}{100}\right)$$

SP at loss

$$\text{SP} = \text{CP} \times \left(1 - \frac{\text{Loss \%}}{100}\right)$$

Marked Price and Discount

Marked Price (MP): Labeled price
Discount: Reduction on MP

$$\text{Discount} = \text{MP} - \text{SP}$$

$$\text{Discount \%} = \frac{\text{Discount}}{\text{MP}} \times 100$$

Successive Discount

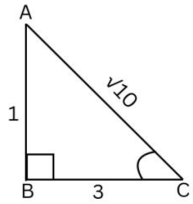
If discounts are x% and y%:

$$\text{Net discount} = x + y - \frac{xy}{100}$$

Exam Tips	
Concept Tips ✓ Always take CP as base for profit/loss % ✓ Understand MP, SP, and discount clearly ✓ Memorize core formulas	**Accuracy Tips** ✓ Identify whether it is profit or loss ✓ Check formula substitution carefully ✓ Recalculate final percentage
Speed Tips ✓ Convert percentages to fractions ✓ Use successive discount shortcut ✓ Avoid long decimal calculations	**Time Management Tips** ✓ Solve direct formula questions first ✓ Skip lengthy word problems initially ✓ Keep calculations neat
Common Mistakes to Avoid × Taking wrong base value × Mixing discount and profit × Sign errors in percentage	

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Legs AB : BC = 1 : 3, find $\sin C$



Let AB=1, BC=3

$$AC = \sqrt{1^2 + 3^2} = \sqrt{10}$$

$$\sin C = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{1}{\sqrt{10}}$$

37. Ans : (d) 1

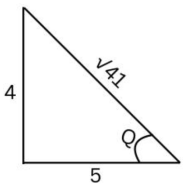
If $\beta = 30°$, find $3\sin\beta - 4\sin^3\beta$ ($\sin^3\beta$=sin 90)

$$\sin 30° = \frac{1}{2}$$

$$3\frac{1}{2} - 4\left(\frac{1}{2}\right)^3$$

$$= \frac{3}{2} - \frac{1}{2} = 1$$

38. Ans : (d) $\frac{2}{3}$



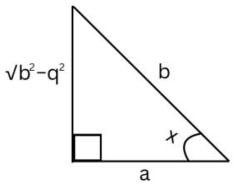
If $\tan\theta = \frac{4}{5}$

Dividing by cose we get

$$\frac{5\sin\theta - 3}{5\sin\theta + 3} = \frac{5 \times \frac{4}{5} - 3}{5 \times \frac{4}{5} + 3}$$

Substitute value= $\frac{1}{7}$

39. Ans : (c) $\frac{\sqrt{b^2 - a^2}}{b}$



If $\cos X = \frac{a}{b}$, find x

$$\sin x = \frac{\sqrt{b^2 - a^2}}{b}$$

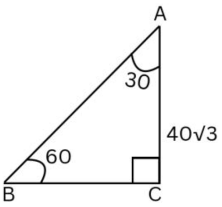
40. Ans : (b) $\sqrt{2}$

Question: $\sin 45° + \cos 45° = ?$

$$\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} = \sqrt{2}$$

41. Ans : (d) 120

Kite height = $40\sqrt{3}$ m, angle = 60°



$$\sin 60° = \frac{40\sqrt{3}}{L}$$

$$\Rightarrow L = \frac{40\sqrt{3}}{\sqrt{3}/2} = 120$$

42. Ans : (a) $\frac{50}{9}$ Using tan 30° and tan 60° relations → result follows.

43. Ans : (a) 30°

Shadow = $\sqrt{3}$ × height

$$\tan\theta = \frac{1}{\sqrt{3}} \Rightarrow \theta = 30°$$

44. Ans : (b) 76.9 m

Two angles of depression 45°, 60°, height = 150 m

Distances: $d_1 = \frac{150}{\tan 45°} = 150$

$$d_2 = \frac{150}{\tan 60°} = 86.6$$

Difference ≈ 76.9 m

45. Ans : (b) 70 m

Angle of depression 45°, base = 70 m

$$\tan 45° = \frac{h}{70} \Rightarrow h = 70$$

46. Ans : (a) 60°

Pole = 6 m, shadow = $2\sqrt{3}$ m

$$\tan\theta = \frac{6}{2\sqrt{3}} = \sqrt{3}$$

$$\Rightarrow \theta = 60°$$

47. Ans : (b) depression

Angle below horizontal

Angle below eye-level = angle of depression.

48. Ans : (d) 16

Ladder, angle 60°, base = 8 m

$$\cos 60° = \frac{8}{L} \Rightarrow L = 16$$

49. Ans : (c) 45°

Height = shadow

$$\tan\theta = 1 \Rightarrow \theta = 45°$$

50. Ans : (a) $25\sqrt{3}$ m

Tower = 25 m, depression = 30°

$$\tan 30° = \frac{25}{d}$$

$$\Rightarrow d = 25\sqrt{3}$$

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