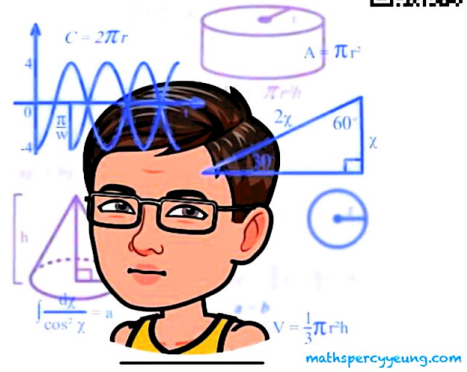




Grade 9 Mathematics Term 2 CNY



Content: Ch.2, 3, 9, 10

- The figure shows the side view of a picture hanging on a vertical wall. The picture makes an angle of  $27^\circ$  with the wall. Find the length of the picture  $PQ$ .

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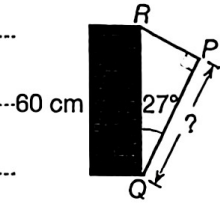
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- In the figure, a bamboo that is 13 m long stands vertically on the horizontal ground. Its top is connected by a string to a nail on the ground which is 10 m away from the bamboo. Find the angle between the string and the ground.

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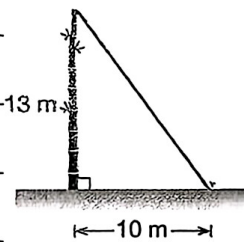
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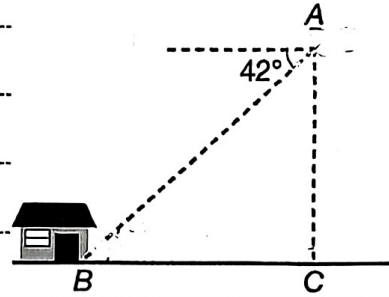
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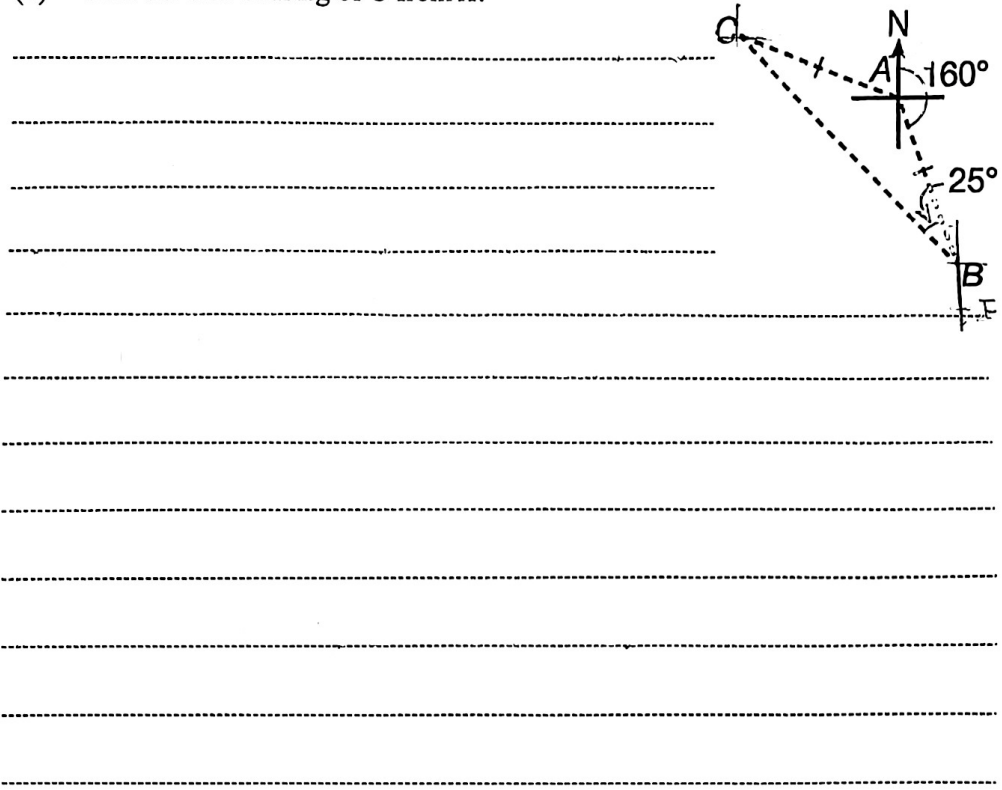




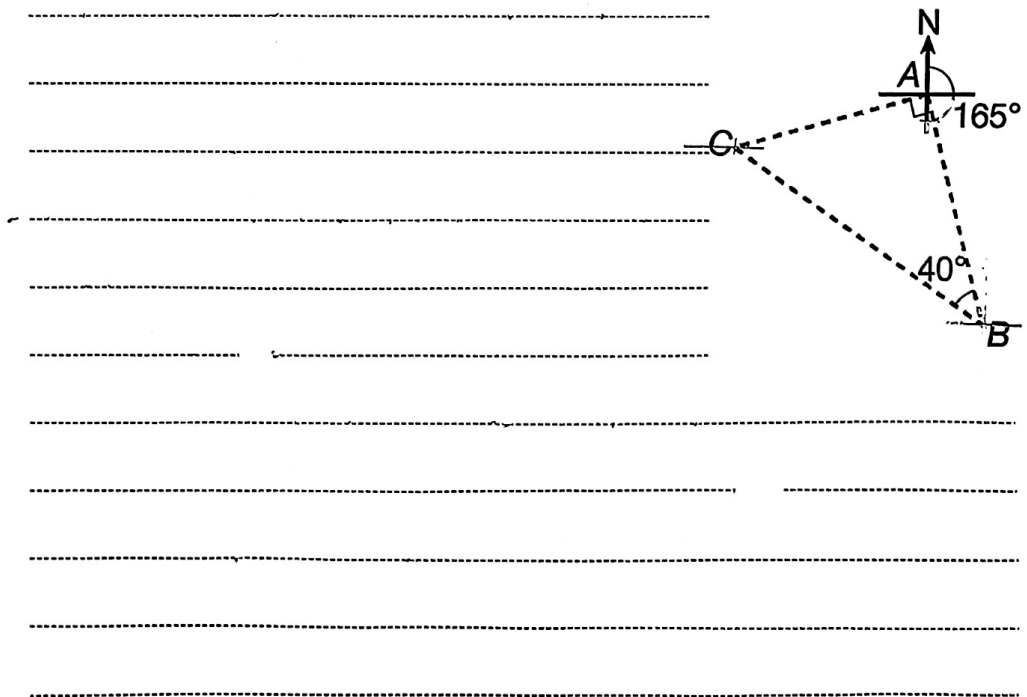
5. In the figure, the pilot of a helicopter at point  $A$  is looking at point  $B$  at the bottom of a house on the horizontal ground. The angle of depression of  $B$  from  $A$  is  $42^\circ$ .  $C$  is a point on the ground such that  $AC \perp BC$ . If the horizontal distance between the helicopter and the house is 15 m greater than the vertical distance, find the vertical distance of the helicopter from the ground, correct to 3 significant figures



6. In the figure, the true bearing of  $B$  from  $A$  is  $160^\circ$ .  $AC = AB$  and  $\angle ABC = 25^\circ$ .
- (a) Find the true bearing of  $A$  from  $B$ .
- (b) Find the true bearing of  $C$  from  $A$ .



7. In the figure, the true bearing of  $B$  from  $A$  is  $165^\circ$ .  $\angle ABC = 40^\circ$  and  $\angle BAC = 90^\circ$ .
- (a) Find the compass bearing of  $C$  from  $A$ .
- (b) Find the compass bearing of  $C$  from  $B$ .



8. (a) Solve the inequality  $\frac{2x-5}{3} \leq 4(x+2)$ .

(c) How many negative integers satisfy the inequality in (a)?

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9. (a) Solve the inequality  $\frac{5x-2}{4} \geq 7-x$ .

(b) Write down the least integer satisfying the inequality in (a).

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10. (a) Solve the inequality  $2[3 - 4(2x + 3)] > 12 - x$ .  
(b) Find the greatest integer satisfies the inequality in (a).

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11. In a class, 18 of the students are 15 years old and the rest are 14 years old. If the total age of all students is less than 480, how many 14-year-old students are there at most?

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13. Convert the following numbers into binary numbers.

(a)  $17_{10}$

(b)  $37_{10}$

(c)  $44_{10}$

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14. Convert the following numbers into denary numbers.

(a)  $11000_2$

(b)  $10111_2$

(c)  $11001_2$

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**END OF ASSIGNMENT**