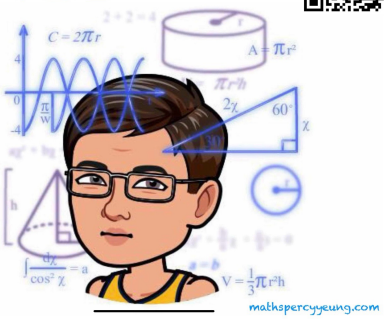



# LTP F3 T9 Application of Trigo

## 2018 – 2019
## S.3 Mathematics Uniform Test 9
## Ch.10 Applications of Trigonometry

## Question-Answer Book

**Date: 17th April, 2019**
**Time: 40 mins**
**This paper must be answered in English**

### Instructions :

1. Write your name, class and class number in the spaces provided on this cover.
2. Answer ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Book.
3. Write your answers with black or blue ball-pens, and draw graphs or figures with HB pencils.
4. Unless otherwise specified, all working must be clearly shown.
5. Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.
6. The diagrams in this paper are not necessarily drawn to scale.

**Section A :**
**Multiple Choices Questions**

| | | |
|---|---|---|
| 1 – 4 | 8 | |
| **Section A Total** | **8** | |

**Section B :**
**Conventional Questions**

| Question | Full marks | Score |
|---|---|---|
| 5 | 8 | |
| 6 | 4 | |
| 7 | 4 | |
| 8 | 4 | |
| 9 | 5 | |
| 10 | 5 | |
| **Section B Total** | 30 | |

**Section C :**
**Bonus Questions**

| | | |
|---|---|---|
| 13 | 4 | |
| **Section C Total** | **4** | |

| | | |
|---|---|---|
| **Paper Total** | **38** | |

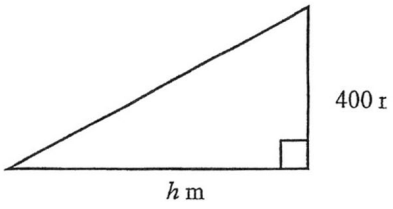
**Section A: Multiple Choices Questions (8 marks)**

**Fill in the answers for question 1-4 in the boxes below.**

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| | | | |

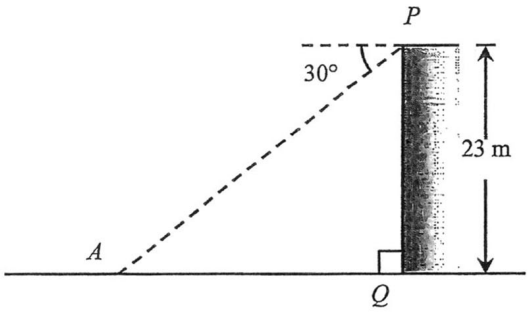
1. The figure shows an inclined plane with gradient of 1 : 3.
Find the value of $h$.

A. 400
B. 800
C. 1200
D. 1600



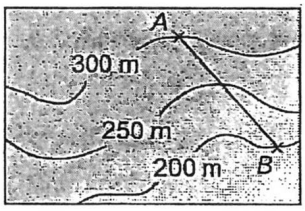

2. In the figure, the angle of depression of $A$ from $P$ is 30°. If the length of $PQ$ is 23 m, what is the distance between $A$ and $P$?

A. 46.0 m
B. 39.8 m
C. 26.6 m
D. 11.5 m



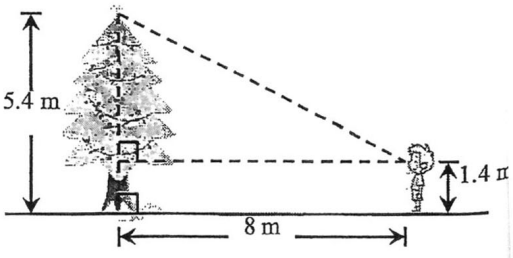

3. The figure shows a contour map. If the gradient of the straight path $AB$ is 1 : 8, find the horizontal distance of $AB$.

A. 100 m
B. 200 m
C. 400 m
D. 800 m



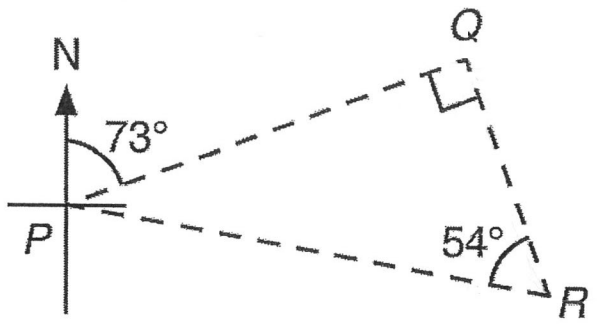

4. In the figure, a boy is 8 m away from the foot of a tree. The height of the tree is 5.4 m and the eye level of the boy is 1.4 m above horizontal ground level. Find the angle of elevation of the top of the tree from the boy.

A. 9.93°
B. 26.6°
C. 34.0°
D. 63.4°



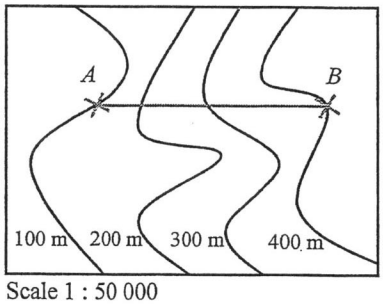
**Section B: Convention Questions (30 marks)**

5. Fill in the table. (8 marks)




| | | True bearing | Compass bearing |
|---|---|---|---|
| (a) | $Q$ from $P$ | | |
| (b) | $P$ from $Q$ | | |
| (c) | $Q$ from $R$ | | |
| (d) | $R$ from $P$ | | |

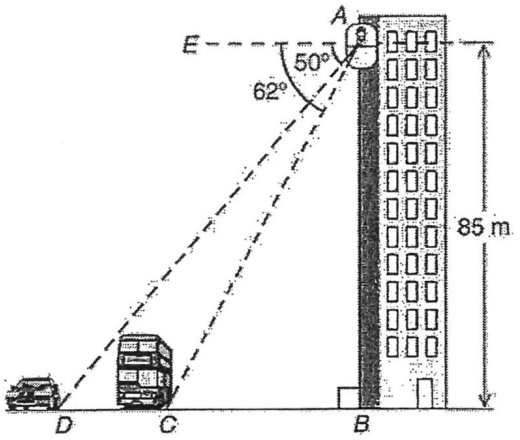
6. The figure shows a contour map with a scale of 1 : 50 000. The length of the cable $AB$ is measured as 3 cm on the map. Find the inclination of the cable $AB$, correct to the nearest 0.1°. (4 marks)



Scale 1 : 50 000

Draft

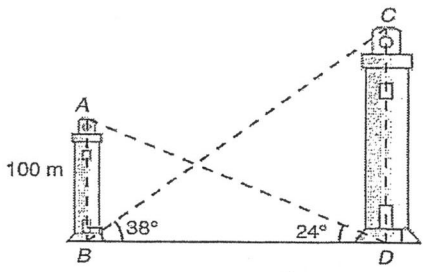
7. In the figure, a woman is inside an elevator of a building which is 85 m above the ground. The angles of depression of bus $C$ and car $D$ from the woman are 62° and 50° respectively, where $B$, $C$ and $D$ lie on a straight line. Find the distance between the bus and the car. (4 marks)



8. The figure shows two towers $AB$ and $CD$. The height of tower $AB$ is 100 m. It is given that the angles of elevation of $A$ from $D$, and of $C$ from $B$ are 24° and 38° respectively.

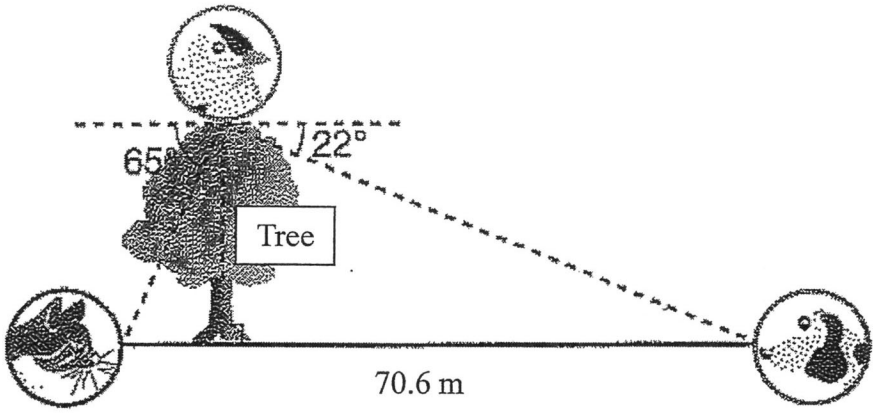
(a) Find the distance between two towers. (2 marks)

(b) Find the distance between $B$ and $C$. (2 marks)



9. A cat, a dog and are all positioned on the same line. A bird is resting on the top of the tree. If the angles of depression of the cat and the dog from the bird are 65° and 22° respectively. If the distance between the cat and the dog is 70.6 m, find the height of the tree.
(The height of the animals can be ignored)

(5 marks)



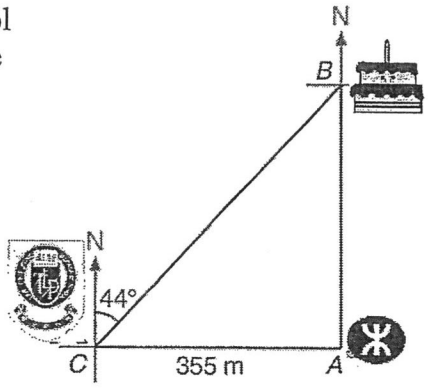
10. In the figure, MTR station is due south of a cake shop and the school is due west of MTR station. It is known that the true bearing of cake shop from the school is 044° and the distance between MTR station and the school is 355 m. Find

(a) the compass bearing of the school from cake shop,

(b) the distance between MTR station and cake shop.

(c) If Wendy walks from the cake shop to the school at a constant speed of 50 m/min, can she finish the journey within 10 minutes? Explain your answer.

(5 marks)

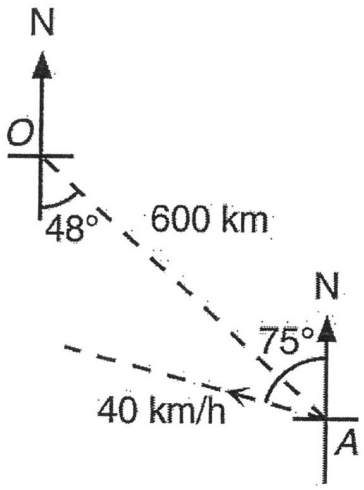


**Section C: Bonus Questions (4 marks)**

11. At noon, a typhoon at point $A$ was 600 km away from the observatory $O$. The compass bearing of $A$ from the observatory $O$ was S48°E. It is known that the typhoon keeps moving in the direction N75°W at a constant speed of 40 km/h.

    (a) Find the shortest distance between the track of the typhoon and the observatory $O$.

    (b) Jenny claims that the typhoon is the nearest to the observatory $O$ at 11 p.m. that day. Do you agree? Explain your answer.

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