

2. Put the following into Maori:—

I love. I am loved. Do you owe the money? If you do you had better pay it. How many sheep have you got? I saw him yesterday. At what time did you leave home yesterday? Formerly ships were always made of wood, but now some are made of iron. Our canoe is made of totara, yours is made of kahika.

3. Put the following into English:—

No hea koutou? No te tonga tenei hau makariri. Tinea te ahi. Tutakina te taupoki o te pouaka. Ka tuwhera te kuwaha. Ki te haere koe aianeia ka uaina koe. Wiriwiri ana te kiri i te mataku. Aua e hoatu te aho ki te tamaiti na kei whiwhi.

4. Translate “Ka hemo te patu a Huka.” Give the various meanings of the verb *hemo*. And illustrate the use of the adverbs *ano*, *atu*, *mai*, supplying translations of each example.

5. Translate the following passage into Maori:—

CHAPTER XVI.

NATIVE MEETINGS (HUIS AND HAKAS)

THE Maori, like the pakeha, is very fond of all kinds of meetings. He goes to meetings called to consider the affairs of the settlement, meetings about land, meetings in connection with the opening of churches and *runanga* houses, meetings for feasting and dancing—in fact, to meetings for all sorts of purposes. It is a very good thing for people to meet and talk over matters of importance, in this way every one may hear what every one else has to say, and all may profit by the wisdom of each. It is well that people should celebrate the opening of churches and meeting-houses, so that, whenever they go to these buildings, they may remember the time when the work in them began, and have pleasant thoughts about it. When young people are married, too, it is good for their friends to assemble and rejoice with them, to make merry and be glad, so that the old people may be able to look back with pleasure to their own wedding-days, and the younger ones to look forward to the time when their turn will come. It is also a good thing that people should, when holidays come round, rest from their work, amuse themselves, and be happy. The horse that works every day and all day long gets tired out at last and quite breaks down, unless he is turned out for a while to take his rest and his pleasure as horses will.

Trigonometry.—For Senior Civil Service. Time allowed 3 hours.

1. Having given that the fourth part of the earth's circumference is ten million metres, find the earth's radius, and the length of one minute of arc on the earth's surface.

2. Define the unit of circular measure, and find its value in degrees.

Express the complements and the supplements of 40° , -40° , and 140° , in circular measure.

3. Find the sine and cosine of 30° . Mention all the angles up to 800° the cosine of which is $\frac{1}{2}$, and give the sine of each of these angles.

If $\tan 3A = -1$, write down the general value of A .

4. Find all the values of A which satisfy the equation, $3 \tan^2 A + 4 \sin^2 A = 2$.

5. Prove the following formulæ:—

$$(a.) \quad \cos(A-B) = \cos A \cos B + \sin A \sin B.$$

$$(b.) \quad \cos(A+B) \cos(A-B) = \cos^2 A - \sin^2 B.$$

$$(c.) \quad \tan(45^\circ + A) - \tan(45^\circ - A) = 2 \tan 2A$$

$$(d.) \quad \frac{\sin^2 A - \sin^2 B}{\sin A \cos A - \sin B \cos B} = \tan(A+B).$$

6. Given $\log 2 = .301$, and $\log 3 = .477$, find the logarithms of 18, 2.4, .25, and .015. Find also the logarithms of $\cos 30^\circ$ and $\cos 45^\circ$.

7. In any triangle ABC , find $\cos A$ and $\cos \frac{1}{2}A$ in terms of the sides.

In any triangle ABC , show that—

$$(a.) \quad \frac{\sin A + \sin C}{\cos A + \cos C} \cdot \frac{1}{2} = B,$$

$$(b.) \quad \tan \frac{A}{2} \tan \frac{B}{2} = 1 - \frac{2c}{a+b+c}.$$

8. From the top of a house 40ft. high the height of a spire, standing on the same level with the house, subtended a right angle, and the angle of elevation of the top of the spire was 60° . Find the height of the spire.

9. You are provided with a theodolite and measuring-chain, and are required to determine the distance between two rocks at sea which are visible from the shore. Indicate the measurements and observations which you would make, and state in order the successive steps in the calculation.