

Maori.—For Senior and Junior Civil Service. Time allowed: 3 hours.

1. Translate the following into English:—

ROANGA-RAHIA ME RURU-TEINA.

Kotahi te wahine rongo nui e kiia ana e te rongo korero a nga iwi katoa, ko Roanga-rahia te ingoa, a ka noho taua hunga nei, he tuakana he teina, ko Ruru-teina te potiki o taua hunga, ka rongo aua tangata nei i te rongo atahua o taua wahine, a ka mea ratou kia haere kia kite ratou, ka mea puku a ia a ia o ratou mana taua wahine, ka mahia te waka ka oti, ka maanu ki te wai ka hoe taua hunga a ka tae ki te kainga i a Roanga-rahia, ka toia te waka ki uta, ka haere nga tangata ki te kainga o taua wahine, a ka rokohina atu aua tamariki e ta potaka ana, ka ui atu a Ruru-teina ki a ratou "Kei whea te huanui." Ka ki mai aua tamariki "whanatu na te roro o te whare o Roanga-rahia." A ka ki atu te waha a Ruru "Ko te huanui tera?" Ka ki mai taua hunga tamariki "Ae," a ka haere tera a Ruru ka tae ki te kainga, ka haere ki roto o te whare o te kainga, ka noho ratou, ka meatia mai he kai mo ratou.

2. Translate the following passage into Maori:—

After the whites came to New Zealand, and as soon as the wars between them and the Maoris had nearly ceased, a new state of things came into being. At this time three ways of life lay open to the Maoris—one was the European way, another his own old mode of living, and the third a kind of mixture of the two. It is to be feared that the Maori made a wrong choice—or, rather, that he chose the third kind of life, and made a very bad mixture. What he has done has been partly to keep to his own old ways and partly to take up the injurious customs of the pakeha. When the pakeha came the Maori was offered much that could do him great good, but at the same time he had too many opportunities of learning from the pakeha practices that would do him unspeakable harm. The Maori too often refused the benefits offered him, and eagerly accepted what was hurtful and destructive. He refused many most useful hints from the pakeha because he did not thoroughly understand their nature, and because they plainly led—at first, at all events—to pretty hard work and some self-denial. He accepted many a bad gift from the pakeha because it seemed easy and pleasant to use it, and because there was no delay preceding the enjoyment of it.

3. Put the following into English:—

I haere mai koe i hea? He kau pai taku kau. He aha te ingoa o te rakau nui na? Ko to potae he mea raranga ki te takakau witi. I mua noa atu i tu nga whare Maori ki runga ki nga maunga, inaianei e tu ke ana nga whare ki nga wahi mania.

4. Put the following into Maori:—

I love her very much. If you meet John tell him that I would like to see him. It would be a good thing for the Maoris if they were to build their houses on high ground. They paddled their canoe very fast.

5. Illustrate the use of the following words—*E, kia, toko, whai*—supplying translations of each example.

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

1. What is meant by circular measure? Express in circular measure (1) an interior angle of a regular decagon, (2) the angle subtended by one of its sides at the circumference of the circumscribing circle.

2. Prove that the circumferences of different circles vary as their radii, and their areas as the squares of their radii.

Find in yards the radius of the circle which contains one square mile.

3. Prove that $\sin^2 A + \cos^2 A = 1$; and give the numerical values of $\tan 150^\circ$, $\sin 225^\circ$, and $\sec 300^\circ$.

Show that $(\sin 150^\circ + \cos 150^\circ)(\sin 150^\circ - \cos 150^\circ) = \cos 120^\circ$.

4. Find $\sin(A + B)$ in terms of the ratios of A and B , taking A and B to be positive angles, and their sum to be less than a right angle: hence deduce expressions for $\sin 2A$ and $\cos(A + B)$.

5. Prove the following identities:—

$$(a) \sin(A + B) \cdot \sin(A - B) = \sin^2 A - \sin^2 B;$$

$$(b) \frac{\operatorname{cosec} 2A}{1 + \cot^2 A} = \frac{1}{2} \tan A;$$

$$(c) \frac{\sin(A - C)}{\cos A \cdot \cos C} + \frac{\sin(B - A)}{\cos B \cdot \cos A} + \frac{\sin(C - B)}{\cos C \cdot \cos B} = 0.$$

6. If $\tan A = 2\sqrt{2}$, find $\sin A$, $\sin 2A$, and $\sin \frac{A}{2}$.

7. Show that in any triangle the sides are proportional to the sines of the opposite angles.

The sides of a triangle are 60ft., 84ft., and 96ft.: find the area of the triangle and the sine of each of its angles.

8. Prove that in any triangle ABC , if the sides opposite to the angles A, B, C , be denoted by a, b, c respectively,

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

Having given that $a = 20$, $b = 10$, $C = 60^\circ$, solve the triangle.

9. From the top of a house 42ft. high, the elevation of the top of a tower, standing on the same level as the house, was observed to be $18^\circ 15'$; and at the base of the house the elevation was found to be $32^\circ 30'$: find the height of the tower.

[Given $\log. 42 = 1.623249$; $L \cos 18^\circ 15' = 9.977586$; $L \sin 14^\circ 15' = 9.391206$; $L \sin 32^\circ 30' = 9.730216$; $\log. 8.706 = .939819$ —diff. 50.]

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