2. State the imperfect and the past participle of *backen, braten, erschrecken, erlöschen, schmelzen, schweigen, schwellen.*

3. State the gender of *Stufe, Zahn, Ton, Storm, Dinte, Gabel, Malerei, Stadt, Gold, Land, Lamm, Kalb;* and give their meaning.

4. Which are the best-known German epic poems; and by whom were they composed?

5. Translate into German—

MY DEAR BROTHER,—

Yesterday I arrived at Cologne, and this morning I went to see the Cathedral. It is very large and very beautiful. The Rhine is a very fine river. We shall remain here for a few days. Next week I shall go to Berlin, where I shall remain the whole winter. I shall work very diligently, and try to learn German very well. When I am in Berlin I shall write long letters to you, and I will tell you all about the streets, houses, and palaces in that town. I wrote to my father and mother from Ostend, and I hope that they have received my letters.

I remain your affectionate brother,

A. K.

*** The above translation must be written in German characters.

MAORI.

1. Translate into English the following:—

I Hawaiki a Ruatapu e noho ana. He tama ia na Uenuku, na tana wahine mokai, na Paimahutanga. I tetahi rangi ka whakahorohoro a Ruatapu i tana manu taratahi, te tapokotanga, tau ki runga ki te whare o tana matua, o Uenuku. Katahi tera a Ruatapu ka piki ki te tiki i tona manu taratahi, ka rongo a Uenuku katahi ka patai ake, "Ko wai tenei, e takahi nei i taku whare?" Te kiinga iho a Ruatapu, "Ko au." Ka patai ake ano a Uenuku, "Ko koe! Ko wai?" Katahi ka whakahokia iho, "Ko au ra, ko Ruatapu." Ko te kiinga ake a Uenuku, "E tama, heke ki raro i taku whare. Mau rawa e kake taku urutapu! Ka pa ano ma Kahutiaterangi ka tika, tena mau! he tama meamea noa ra koe naku." Te rongonga o Ruatapu, ka noho te ngakau mauahara i roto i a ia, ka tahuri tonu ki te tarai i tetahi waka nui.

2. Translate into Maori the following:—

Ruatapu then pursued Paikea that he might destroy him also, but he was unable to overtake him. Having drowned all the others, and finding that he could not catch Paikea, he shouted, "Go, Paikea, and, when you reach the land of Aotearoa, gather together on the top of Mount Pukehapopo the people who are to be saved from the high-tide waves of summer. If I do not reach there I am not a child of our father." By the expression "if I do not reach there," he meant, "If I do not send a heavy sea to submerge the land." About five months after the landing of Paikea, a heavy sea rolled over the whole island, leaving the high mountains alone uncovered. This flood was called "the tidal wave of Ruatapu."

3. Translate into Maori the following:—

As soon as Pita arrives at Tauranga he will be imprisoned for horse-stealing.

It was when he looked at me that I spoke to him.

The Maori language is not a very difficult language to learn.

As Hoani was threshing his wheat, he was taken ill.

What was the horse like that Pita bought at Waiwhetu?

4. Translate into English the following:—

I noho huihui nga tangata i mua ki roto ki te pa, te take he wehi kei patua e te taua.

E kiia ana he whawhai te putake i rere mai ai nga tupuna o nga Maori i Hawaiki.

He nunui etahi o nga whare, i hanga hoki hei nohoanga mo nga manuhiri, hei whare korero mo nga huihuinga tangata.

5. Write to the Governor (as from a Maori), welcoming him on his arrival in New Zealand, assuring him of your loyalty to the Queen; and invite him to visit your district.

PLANE TRIGONOMETRY.

1. Define plane trigonometry and trigonometrical ratio, and give six examples of the latter.

2. Prove the truth of the following formulæ:—

$$\mathrm{Sin}^2A-\mathrm{Sin}^2B=\mathrm{Cos}^2B-\mathrm{Cos}^2A=\mathrm{Sin}(A+B)\mathrm{Sin}(A-B).$$

$$\mathrm{Cos}^2A-\mathrm{Sin}^2B=\mathrm{Cos}^2B-\mathrm{Sin}^2A=\mathrm{Cos}(A+B)\mathrm{Cos}(A-B).$$

$$\mathrm{Tan}^2A-\mathrm{Tan}^2B=\frac{\mathrm{Sin}(A+B)\,\mathrm{Sin}(A-B)}{\mathrm{Cos}^2A\,\mathrm{Cos}^2B}.$$

$$\mathrm{Cot}^2B-\mathrm{Cot}^2A=\frac{\mathrm{Sin}(A+B)\mathrm{Sin}(A-B)}{\mathrm{Sin}^2A\,\mathrm{Sin}^2B}.$$

3. Given $\mathrm{Cos}(A-B)=\frac{\sqrt{3}}{2}$, $\mathrm{Sin}(A-B)=\mathrm{Cos}(A+B)$, find A and B.

4. Show, for any plane triangle, that—

$$\mathrm{Sin}A+\mathrm{Sin}B+\mathrm{Sin}C=4\mathrm{Cos}\frac{A}{2}\mathrm{Cos}\frac{B}{2}\mathrm{Cos}\frac{C}{2}.$$

$$\mathrm{Cot}\frac{B}{2}+\mathrm{Cot}\frac{C}{2}=\frac{\mathrm{Cos}\frac{A}{2}}{\mathrm{Sin}\frac{B}{2}\,\mathrm{Sin}\frac{C}{2}}.$$

5. Find the circular measure of an angle 7° 12′.

6. The driving-wheel of a locomotive engine, 6 feet in diameter, makes two revolutions in a second: find the number of miles which the train passes over in an hour.