

1. [5] Explain their role in cracking hieroglyphs. Mention Cleopatra, Ramses, and the root language.

Young: -----  
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Champollion: -----  
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2. [5] Complete the Turing diagram, and give the info for the *bombe* operator: ----- .

crib	W E T T E R N U L L S E C H S	U	W---	L---	S	A	H	C
ciphertext	L A X I O O W B S X T I H D P							
		B	N	X---	T---	I	E---	O---

Mention two ways the Germans improved the security of the Enigma during WWII.

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- [3] (i) Kober guessed that each Linear B symbol represented a consonant-vowel pair.

She arranged these 6 words in two columns, because

3. -----  
She guessed that ----- and ----- share a vowel because -----  
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----- .

𐀀𐀁	𐀂𐀃
𐀄𐀅	𐀆𐀇
𐀈	𐀉

- [2] (ii) Ventris cracked Linear B. He guessed a 4-symbol crib word was the name of a ----- (it started with a rarely-used symbol, which might be a pure -----). Knowing these 4 symbols, he then guessed the names of other -----, one which was ----- . From these 8 symbols he saw that the language of Linear B was an old form of ----- .

4. [3] Below is a 1-4 Rejewski permutation. Compute the fingerprint.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
D E O S Z I V T N M C F Q P J W R Y X B K H G U A L

5. [2] Match each term to its keyword (b: buzzard, e: egg, i: iron fish, h: hummingbird, w: whale):

fighter plane \_\_\_ bomb \_\_\_ bomber \_\_\_ battleship \_\_\_ submarine \_\_\_

The codetalker system used these keywords because -----