

Mathematics in the Torah

Parashat Ki Tissa: The 13 Principles of Mercy

The verses

In *Parashat Ki Tissa* we read about how God revealed the 13 Principles of Mercy to Moses following the sin of the Golden Calf. The 13 Principles are taken from the following three verses,¹

Havayah came down in a cloud; He stood with him there, and proclaimed the name *Havayah*. *Havayah* passed before him and proclaimed: “*Havayah!* *Havayah*, a God compassionate and gracious, slow to anger, abounding in kindness and faithfulness. Extending kindness to the thousandth generation, forgiving iniquity, transgression, and sin and He cleanses all, but does not remit all punishment, but visits the iniquity of parents upon children and children’s children, upon the third and fourth generations.”

And in the original Hebrew:

וַיֵּרָד הוֹי' בְּעֵנָן וַיִּתְיַצֵּב עִמּוֹ שֵׁם וַיִּקְרָא בְּשֵׁם הוֹי': וַיַּעֲבֵר הוֹי' עַל-פְּנֵיו וַיִּקְרָא הוֹי'-א-ל רְחוּם וְחַנוּן אֶרֶךְ אַפַּיִם וְרַב-חַסֵּד וְאֱמֶת. נִצַּר חֶסֶד לְאֱלֹפִים נִשָּׂא עוֹן וְפָשַׁע וְחַטָּאָה וְנִקְיָה לֹא יִנְקֶה פְקֹד עוֹן אָבוֹת עַל-בְּנֵים וְעַל-בְּנֵי בָנִים עַל-שְׁלִשִׁים וְעַל-רִבְעִים:

It has been passed down from Moses at Sinai that these verses contain exactly 13 measures of principles of God’s Divine mercy. The sages identify these 13 measures as being described by the words, “a God compassionate and gracious, slow to anger, abounding in kindness and faithfulness. Extending kindness to the thousandth generation, forgiving iniquity, transgression, and He cleanses all” (א-ל רְחוּם וְחַנוּן אֶרֶךְ אַפַּיִם) (וְרַב-חַסֵּד וְאֱמֶת. נִצַּר חֶסֶד לְאֱלֹפִים נִשָּׂא עוֹן וְפָשַׁע וְחַטָּאָה וְנִקְיָה). However, it is not at all clear why the measures of mercy would not continue. We might further ask if there is some kind of mathematical allusion to the fact that there are 13 measures.

The first thing to note is that within these verses there lies an equidistant skip of 39 letters that form God’s essential Name, *Havayah*—the Name of Divine mercy. 39 is the value of “*Havayah* is one” (י-הוה אחד). The total number of letters included in this equidistant skip is thus 121. We have included the letter *vav* that precedes the first letter *yud*, in order to more easily recognize the source in the verses.



The total value of these 121 letters is 6210, which is the value of 30 times “light” (אור) as well as 10 times the value of “crown” (כתרא) in Aramaic, which are also the initial

¹. Exodus 34:5-7.

