

Equation sets based on different parameters

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1 Introduction

This document contains sets of equations that are suitable to test the impact the length of the equation can have on the listener. We consider a few factors that may be important to assessing the listener capability to remember the equation. Equations in which each of these parameters vary are listed below.

2 Equation variations based on number of variables

$$\begin{aligned}X &= Y \\X + Y &= z \\ \frac{X+Y}{K} &= \alpha \\ (X+Y)^K &= 3 * X^K + 4 * X^y - 5Y^{K+X} \\ (X+Y)^{P+Q} &= X^{P*Q} + Y^P * Q - P + \frac{Q}{Y} - \frac{P}{Q-X} \\ \frac{(P+X)*(Q-Y)}{(X+Y)^K} &= \frac{P}{X+K} - Q * (\frac{K^x}{Y-P})\end{aligned}$$

3 Equations with variations in number of terms

$$\begin{aligned}Y &= X^2 \\X^Y + P^Q &= \frac{X+Y}{P+Q} \\ P + Q + R^K &= P^K + Q - P * Q * R + P^{\frac{Q}{K}} \\ \frac{P}{K} + (P+K) * (P * K) * (P-K) &= \frac{P*K}{K*P} + P^{K*P} \\ (A+B)^2 &= \sqrt[4]{A+B} - \sqrt[2]{\frac{A}{B}} - \sqrt{(A+B) * (A-B)} + (A+B) * (\frac{A}{B}) \\ P^Q + P^{R+Q} - P^R + Q + P^{R^Q * P} &= P^{\frac{R+1}{Q}} - P^R + q^{\frac{1}{P}}\end{aligned}$$

4 Equations with variation in number of repetitions of a variable

$$X + X^2 = x^3$$

$$x^2 + X^3 + x^9 - X = X^{14}$$

$$X + \frac{X}{2} + \frac{X}{4} + \frac{X}{6+X} = \frac{16}{X}$$

$$K + K^X - K^{K+X} + K^{K^X} + K^{X*K} = X^{(K+X)*(X-K)}$$

$$\frac{X}{P} + \frac{X+1}{P+1} - \frac{X+2}{P+2} + \frac{3X}{3P} = \frac{(X+P)^3}{6^{P*X}}$$

$$\frac{X+Y+Z}{K} = X * \frac{Y}{K} + Y * \frac{Z}{K} + Z * \frac{X}{K} + \frac{Z+Y}{X*K}$$