QR Code Logs and Antilogs for Galois Field 256

This page lists the log and antilog values that are used in GF(256) arithmetic, which is used for generating the error correction (error-correction-coding) codes required for QR codes.
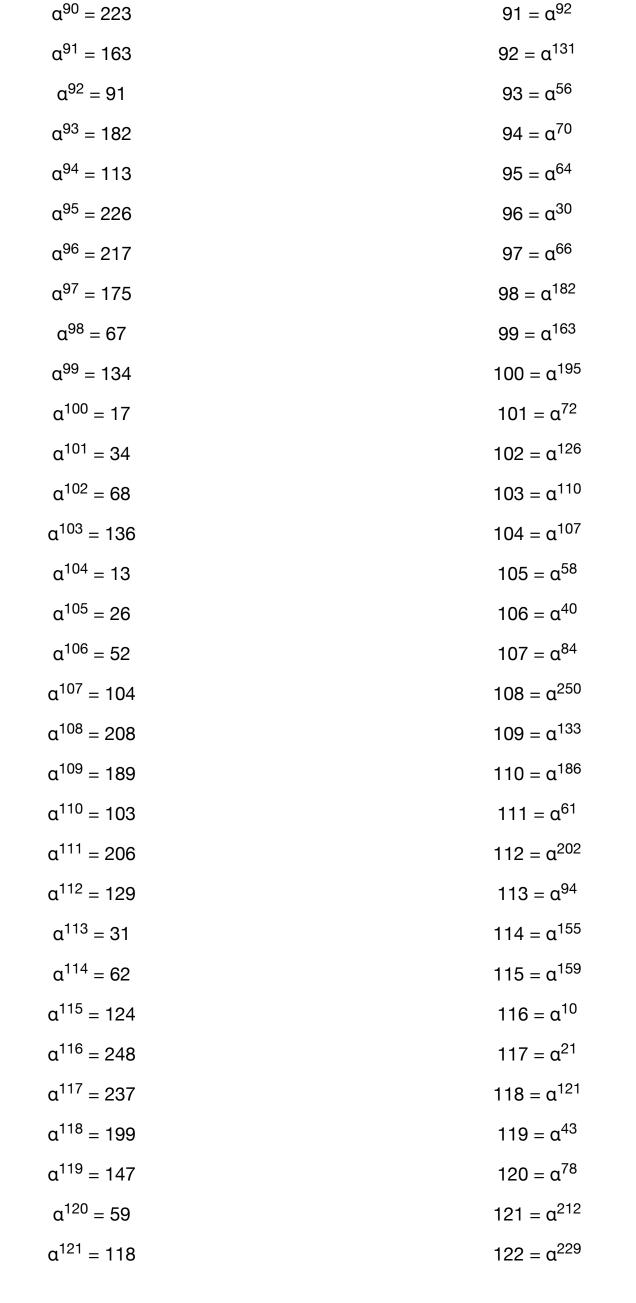
$\alpha^0 = 1$	$1 = \alpha^0$
$\alpha^1 = 2$	$2 = \alpha^1$
$\alpha^2 = 4$	$3 = \alpha^{25}$
$\alpha^3 = 8$	$4 = \alpha^2$
$\alpha^4 = 16$	$5 = \alpha^{50}$
$\alpha^5 = 32$	$6 = \alpha^{26}$
$\alpha^6 = 64$	$7 = \alpha^{198}$
$\alpha^7 = 128$	$8 = \alpha^3$
$\alpha^8 = 29$	$9 = \alpha^{223}$
$\alpha^9 = 58$	$10 = \alpha^{51}$
$\alpha^{10} = 116$	$11 = \alpha^{238}$
$\alpha^{11} = 232$	$12 = \alpha^{27}$
$\alpha^{12} = 205$	$13 = \alpha^{104}$
$\alpha^{13} = 135$	$14 = \alpha^{199}$
$\alpha^{14} = 19$	$15 = \alpha^{75}$
$\alpha^{15} = 38$	$16 = \alpha^4$
$\alpha^{16} = 76$	$17 = \alpha^{100}$
$\alpha^{17} = 152$	$18 = \alpha^{224}$
$\alpha^{18} = 45$	$19 = \alpha^{14}$
$\alpha^{19} = 90$	$20 = \alpha^{52}$
$\alpha^{20} = 180$	$21 = \alpha^{141}$
$\alpha^{21} = 117$	$22 = \alpha^{239}$
$\alpha^{22} = 234$	$23 = \alpha^{129}$
$\alpha^{23} = 201$	$24 = \alpha^{28}$
$\alpha^{24} = 143$	$25 = \alpha^{193}$
$\alpha^{25} = 3$	$26 = \alpha^{105}$

$\alpha^{26} = 6$

$\alpha^{27} = 12$

$\alpha^{28} = 24$

$\alpha^{29} = 48$

$\alpha^{30} = 96$

$\alpha^{31} = 192$

$\alpha^{32} = 157$

$\alpha^{33} = 39$

$\alpha^{34} = 78$

$\alpha^{35} = 156$

$\alpha^{36} = 37$

$\alpha^{37} = 74$

$\alpha^{38} = 148$

$\alpha^{39} = 53$

$\alpha^{40} = 106$

$\alpha^{41} = 212$

$\alpha^{42} = 181$

$\alpha^{43} = 119$

$\alpha^{44} = 238$

$\alpha^{45} = 193$

$\alpha^{46} = 159$

$\alpha^{47} = 35$

$\alpha^{48} = 70$

$\alpha^{49} = 140$

$\alpha^{50} = 5$

$\alpha^{51} = 10$

$\alpha^{52} = 20$

$\alpha^{53} = 40$

$\alpha^{54} = 80$

$\alpha^{55} = 160$

$\alpha^{56} = 93$

$\alpha^{57} = 186$

$27 = \alpha^{248}$

$28 = \alpha^{200}$

$29 = \alpha^{8}$

$30 = \alpha^{76}$

$31 = \alpha^{113}$

$32 = \alpha^{5}$

$33 = \alpha^{138}$

$34 = \alpha^{101}$

$35 = \alpha^{47}$

$36 = \alpha^{225}$

$37 = \alpha^{36}$

$38 = \alpha^{15}$

$39 = \alpha^{33}$

$40 = \alpha^{53}$

$41 = \alpha^{147}$

$42 = \alpha^{142}$

$43 = \alpha^{218}$

$44 = \alpha^{240}$

$45 = \alpha^{18}$

$46 = \alpha^{130}$

$47 = \alpha^{69}$

$48 = \alpha^{29}$

$49 = \alpha^{181}$

$50 = \alpha^{194}$

$51 = \alpha^{125}$

$52 = \alpha^{106}$

$53 = \alpha^{39}$

$54 = \alpha^{249}$

$55 = \alpha^{185}$

$56 = \alpha^{201}$

$57 = \alpha^{154}$

$58 = \alpha^{9}$

$\alpha^{58} = 105$	$59 = \alpha^{120}$
$\alpha^{59} = 210$	$60 = \alpha^{77}$
$\alpha^{60} = 185$	$61 = \alpha^{228}$
$\alpha^{61} = 111$	$62 = \alpha^{114}$
$\alpha^{62} = 222$	$63 = \alpha^{166}$
$\alpha^{63} = 161$	$64 = \alpha^{6}$
$\alpha^{64} = 95$	$65 = \alpha^{191}$
$\alpha^{65} = 190$	$66 = \alpha^{139}$
$\alpha^{66} = 97$	$67 = \alpha^{98}$
$\alpha^{67} = 194$	$68 = \alpha^{102}$
$\alpha^{68} = 153$	$69 = \alpha^{221}$
$\alpha^{69} = 47$	$70 = \alpha^{48}$
$\alpha^{70} = 94$	$71 = \alpha^{253}$
$\alpha^{71} = 188$	$72 = \alpha^{226}$
$\alpha^{72} = 101$	$73 = \alpha^{152}$
$\alpha^{73} = 202$	$74 = \alpha^{37}$
$\alpha^{74} = 137$	$75 = \alpha^{179}$
$\alpha^{75} = 15$	$76 = \alpha^{16}$
$\alpha^{76} = 30$	$77 = \alpha^{145}$
$\alpha^{77} = 60$	$78 = \alpha^{34}$
$\alpha^{78} = 120$	$79 = \alpha^{136}$
$\alpha^{79} = 240$	$80 = \alpha^{54}$
$\alpha^{80} = 253$	$81 = \alpha^{208}$
$\alpha^{81} = 231$	$82 = \alpha^{148}$
$\alpha^{82} = 211$	$83 = \alpha^{206}$
$\alpha^{83} = 187$	$84 = \alpha^{143}$
$\alpha^{84} = 107$	$85 = \alpha^{150}$
$\alpha^{85} = 214$	$86 = \alpha^{219}$
$\alpha^{86} = 177$	$87 = \alpha^{189}$
$\alpha^{87} = 127$	$88 = \alpha^{241}$
$\alpha^{88} = 254$	$89 = \alpha^{210}$
$\alpha^{89} = 225$	$90 = \alpha^{19}$

$\alpha^{90} = 223$	$91 = \alpha^{92}$
$\alpha^{91} = 163$	$92 = \alpha^{131}$
$\alpha^{92} = 91$	$93 = \alpha^{56}$
$\alpha^{93} = 182$	$94 = \alpha^{70}$
$\alpha^{94} = 113$	$95 = \alpha^{64}$
$\alpha^{95} = 226$	$96 = \alpha^{30}$
$\alpha^{96} = 217$	$97 = \alpha^{66}$
$\alpha^{97} = 175$	$98 = \alpha^{182}$
$\alpha^{98} = 67$	$99 = \alpha^{163}$
$\alpha^{99} = 134$	$100 = \alpha^{195}$
$\alpha^{100} = 17$	$101 = \alpha^{72}$
$\alpha^{101} = 34$	$102 = \alpha^{126}$
$\alpha^{102} = 68$	$103 = \alpha^{110}$
$\alpha^{103} = 136$	$104 = \alpha^{107}$
$\alpha^{104} = 13$	$105 = \alpha^{58}$
$\alpha^{105} = 26$	$106 = \alpha^{40}$
$\alpha^{106} = 52$	$107 = \alpha^{84}$
$\alpha^{107} = 104$	$108 = \alpha^{250}$
$\alpha^{108} = 208$	$109 = \alpha^{133}$
$\alpha^{109} = 189$	$110 = \alpha^{186}$
$\alpha^{110} = 103$	$111 = \alpha^{61}$
$\alpha^{111} = 206$	$112 = \alpha^{202}$
$\alpha^{112} = 129$	$113 = \alpha^{94}$
$\alpha^{113} = 31$	$114 = \alpha^{155}$
$\alpha^{114} = 62$	$115 = \alpha^{159}$
$\alpha^{115} = 124$	$116 = \alpha^{10}$
$\alpha^{116} = 248$	$117 = \alpha^{21}$
$\alpha^{117} = 237$	$118 = \alpha^{121}$
$\alpha^{118} = 199$	$119 = \alpha^{43}$
$\alpha^{119} = 147$	$120 = \alpha^{78}$
$\alpha^{120} = 59$	$121 = \alpha^{212}$
$\alpha^{121} = 118$	$122 = \alpha^{229}$

$a^{122} = 236$

$a^{123} = 197$

$a^{124} = 151$

$a^{125} = 51$

$a^{126} = 102$

$a^{127} = 204$

$a^{128} = 133$

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$a^{130} = 46$

$a^{131} = 92$

$a^{132} = 184$

$a^{133} = 109$

$a^{134} = 218$

$a^{135} = 169$

$a^{136} = 79$

$a^{137} = 158$

$a^{138} = 33$

$a^{139} = 66$

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$a^{144} = 168$

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$a^{149} = 164$

$a^{150} = 85$

$a^{151} = 170$

$a^{152} = 73$

$a^{153} = 146$

$123 = a^{172}$

$124 = a^{115}$

$125 = a^{243}$

$126 = a^{167}$

$127 = a^{87}$

$128 = a^{7}$

$129 = a^{112}$

$130 = a^{192}$

$131 = a^{247}$

$132 = a^{140}$

$133 = a^{128}$

$134 = a^{99}$

$135 = a^{13}$

$136 = a^{103}$

$137 = a^{74}$

$138 = a^{222}$

$139 = a^{237}$

$140 = a^{49}$

$141 = a^{197}$

$142 = a^{254}$

$143 = a^{24}$

$144 = a^{227}$

$145 = a^{165}$

$146 = a^{153}$

$147 = a^{119}$

$148 = a^{38}$

$149 = a^{184}$

$150 = a^{180}$

$151 = a^{124}$

$152 = a^{17}$

$153 = a^{68}$

$154 = a^{146}$

$\alpha^{154} = 57$	$155 = \alpha^{217}$
$\alpha^{155} = 114$	$156 = \alpha^{35}$
$\alpha^{156} = 228$	$157 = \alpha^{32}$
$\alpha^{157} = 213$	$158 = \alpha^{137}$
$\alpha^{158} = 183$	$159 = \alpha^{46}$
$\alpha^{159} = 115$	$160 = \alpha^{55}$
$\alpha^{160} = 230$	$161 = \alpha^{63}$
$\alpha^{161} = 209$	$162 = \alpha^{209}$
$\alpha^{162} = 191$	$163 = \alpha^{91}$
$\alpha^{163} = 99$	$164 = \alpha^{149}$
$\alpha^{164} = 198$	$165 = \alpha^{188}$
$\alpha^{165} = 145$	$166 = \alpha^{207}$
$\alpha^{166} = 63$	$167 = \alpha^{205}$
$\alpha^{167} = 126$	$168 = \alpha^{144}$
$\alpha^{168} = 252$	$169 = \alpha^{135}$
$\alpha^{169} = 229$	$170 = \alpha^{151}$
$\alpha^{170} = 215$	$171 = \alpha^{178}$
$\alpha^{171} = 179$	$172 = \alpha^{220}$
$\alpha^{172} = 123$	$173 = \alpha^{252}$
$\alpha^{173} = 246$	$174 = \alpha^{190}$
$\alpha^{174} = 241$	$175 = \alpha^{97}$
$\alpha^{175} = 255$	$176 = \alpha^{242}$
$\alpha^{176} = 227$	$177 = \alpha^{86}$
$\alpha^{177} = 219$	$178 = \alpha^{211}$
$\alpha^{178} = 171$	$179 = \alpha^{171}$
$\alpha^{179} = 75$	$180 = \alpha^{20}$
$\alpha^{180} = 150$	$181 = \alpha^{42}$
$\alpha^{181} = 49$	$182 = \alpha^{93}$
$\alpha^{182} = 98$	$183 = \alpha^{158}$
$\alpha^{183} = 196$	$184 = \alpha^{132}$
$\alpha^{184} = 149$	$185 = \alpha^{60}$
$\alpha^{185} = 55$	$186 = \alpha^{57}$

$\alpha^{186} = 110$	$187 = \alpha^{83}$
$\alpha^{187} = 220$	$188 = \alpha^{71}$
$\alpha^{188} = 165$	$189 = \alpha^{109}$
$\alpha^{189} = 87$	$190 = \alpha^{65}$
$\alpha^{190} = 174$	$191 = \alpha^{162}$
$\alpha^{191} = 65$	$192 = \alpha^{31}$
$\alpha^{192} = 130$	$193 = \alpha^{45}$
$\alpha^{193} = 25$	$194 = \alpha^{67}$
$\alpha^{194} = 50$	$195 = \alpha^{216}$
$\alpha^{195} = 100$	$196 = \alpha^{183}$
$\alpha^{196} = 200$	$197 = \alpha^{123}$
$\alpha^{197} = 141$	$198 = \alpha^{164}$
$\alpha^{198} = 7$	$199 = \alpha^{118}$
$\alpha^{199} = 14$	$200 = \alpha^{196}$
$\alpha^{200} = 28$	$201 = \alpha^{23}$
$\alpha^{201} = 56$	$202 = \alpha^{73}$
$\alpha^{202} = 112$	$203 = \alpha^{236}$
$\alpha^{203} = 224$	$204 = \alpha^{127}$
$\alpha^{204} = 221$	$205 = \alpha^{12}$
$\alpha^{205} = 167$	$206 = \alpha^{111}$
$\alpha^{206} = 83$	$207 = \alpha^{246}$
$\alpha^{207} = 166$	$208 = \alpha^{108}$
$\alpha^{208} = 81$	$209 = \alpha^{161}$
$\alpha^{209} = 162$	$210 = \alpha^{59}$
$\alpha^{210} = 89$	$211 = \alpha^{82}$
$\alpha^{211} = 178$	$212 = \alpha^{41}$
$\alpha^{212} = 121$	$213 = \alpha^{157}$
$\alpha^{213} = 242$	$214 = \alpha^{85}$
$\alpha^{214} = 249$	$215 = \alpha^{170}$
$\alpha^{215} = 239$	$216 = \alpha^{251}$
$\alpha^{216} = 195$	$217 = \alpha^{96}$
$\alpha^{217} = 155$	$218 = \alpha^{134}$

$\alpha^{218} = 43$	$219 = \alpha^{177}$
$\alpha^{219} = 86$	$220 = \alpha^{187}$
$\alpha^{220} = 172$	$221 = \alpha^{204}$
$\alpha^{221} = 69$	$222 = \alpha^{62}$
$\alpha^{222} = 138$	$223 = \alpha^{90}$
$\alpha^{223} = 9$	$224 = \alpha^{203}$
$\alpha^{224} = 18$	$225 = \alpha^{89}$
$\alpha^{225} = 36$	$226 = \alpha^{95}$
$\alpha^{226} = 72$	$227 = \alpha^{176}$
$\alpha^{227} = 144$	$228 = \alpha^{156}$
$\alpha^{228} = 61$	$229 = \alpha^{169}$
$\alpha^{229} = 122$	$230 = \alpha^{160}$
$\alpha^{230} = 244$	$231 = \alpha^{81}$
$\alpha^{231} = 245$	$232 = \alpha^{11}$
$\alpha^{232} = 247$	$233 = \alpha^{245}$
$\alpha^{233} = 243$	$234 = \alpha^{22}$
$\alpha^{234} = 251$	$235 = \alpha^{235}$
$\alpha^{235} = 235$	$236 = \alpha^{122}$
$\alpha^{236} = 203$	$237 = \alpha^{117}$
$\alpha^{237} = 139$	$238 = \alpha^{44}$
$\alpha^{238} = 11$	$239 = \alpha^{215}$
$\alpha^{239} = 22$	$240 = \alpha^{79}$
$\alpha^{240} = 44$	$241 = \alpha^{174}$
$\alpha^{241} = 88$	$242 = \alpha^{213}$
$\alpha^{242} = 176$	$243 = \alpha^{233}$
$\alpha^{243} = 125$	$244 = \alpha^{230}$
$\alpha^{244} = 250$	$245 = \alpha^{231}$
$\alpha^{245} = 233$	$246 = \alpha^{173}$
$\alpha^{246} = 207$	$247 = \alpha^{232}$
$\alpha^{247} = 131$	$248 = \alpha^{116}$
$\alpha^{248} = 27$	$249 = \alpha^{214}$
$\alpha^{249} = 54$	$250 = \alpha^{244}$

$$\alpha^{250} = 108 \qquad\qquad 251 = \alpha^{234}$$

$$\alpha^{251} = 216 \qquad\qquad 252 = \alpha^{168}$$

$$\alpha^{252} = 173 \qquad\qquad 253 = \alpha^{80}$$

$$\alpha^{253} = 71 \qquad\qquad 254 = \alpha^{88}$$

$$\alpha^{254} = 142 \qquad\qquad 255 = \alpha^{175}$$

$$\alpha^{255} = 1$$