

Supplementary table 1. Harmonized dataset of Mendelian randomization

| SNP | allele.exp | allele.expt | allele.out | allele.out | eta.expos | eta.outcom | chr | pos |
|------------|------------|-------------|------------|------------|-----------|------------|-----|-----------|
| rs10160436 | T | C | T | C | -0.05843 | -0.166 | 11 | 14570113 |
| rs10277163 | G | A | G | A | -0.01433 | -0.0037 | 7 | 21569089 |
| rs1038165 | T | C | T | C | 0.011515 | 0.0089 | 12 | 68665940 |
| rs10426 | A | G | A | G | 0.025596 | 0.0352 | 19 | 51517798 |
| rs10438978 | C | T | C | T | -0.01722 | 0.0613 | 18 | 47158186 |
| rs1047891 | A | C | A | C | -0.0134 | 0.0821 | 2 | 211540507 |
| rs10789481 | G | C | G | C | 0.012793 | 0.079 | 1 | 46383583 |
| rs10859995 | C | T | C | T | -0.04363 | -0.0986 | 12 | 96375682 |
| rs10896045 | G | A | G | A | 0.012784 | 0.0076 | 11 | 65555524 |
| rs11023068 | A | C | A | C | -0.0522 | -0.0656 | 11 | 14076748 |
| s11151574 | A | G | A | G | -0.04874 | -0.4606 | 11 | 14370944 |
| rs11207969 | G | A | G | A | 0.02094 | 0.0243 | 1 | 62911751 |
| rs11217815 | A | G | A | G | -0.01229 | 0.0043 | 11 | 120190262 |
| rs11249443 | A | G | A | G | 0.018025 | -0.1835 | 4 | 70365831 |
| rs11264223 | A | G | A | G | -0.01196 | 0.0229 | 1 | 154572228 |
| rs11264361 | G | T | G | T | 0.017488 | -0.0635 | 1 | 155289545 |
| rs1128535 | T | C | T | C | 0.016413 | 0.1169 | 3 | 49866392 |
| s11313718 | G | T | G | T | -0.06039 | 0.3767 | 11 | 14034028 |
| s11468767 | A | G | A | G | -0.07097 | 0.0845 | 4 | 72826736 |
| rs1149605 | C | T | C | T | 0.022466 | 0.073 | 11 | 76485216 |
| s11528887 | A | G | A | G | 0.078807 | -0.0918 | 1 | 152000117 |
| rs11542462 | A | G | A | G | -0.02478 | 0.0754 | 16 | 82033810 |
| rs11607525 | A | G | A | G | -0.02289 | 0.066 | 11 | 13838802 |
| s11730083 | A | G | A | G | -0.33499 | -0.1364 | 11 | 15118975 |
| s11767964 | G | A | G | A | -0.05934 | -0.1884 | 11 | 16604424 |
| s11786242 | C | T | C | T | -0.05046 | 0.1555 | 11 | 13210063 |
| rs11791258 | A | G | A | G | 0.014081 | -0.0129 | 9 | 107632644 |
| rs11823869 | G | C | G | C | 0.027411 | -0.0056 | 11 | 75484929 |
| rs11867297 | T | C | T | C | 0.013543 | -0.0454 | 17 | 66433493 |
| rs12026113 | T | A | T | A | -0.01546 | -0.1358 | 1 | 155071167 |
| rs12056768 | G | T | G | T | -0.0232 | 0.1001 | 8 | 116988527 |
| rs12085336 | T | A | T | A | -0.01442 | -0.031 | 1 | 150775780 |
| rs12153819 | T | C | T | C | -0.01782 | 0.0426 | 6 | 83901889 |
| rs12196316 | C | T | C | T | -0.01405 | 0.0516 | 6 | 22757900 |
| rs12307364 | T | C | T | C | 0.021298 | 0.007 | 12 | 96382938 |
| rs12411742 | A | G | A | G | -0.01169 | -0.1186 | 10 | 82042782 |
| rs12462826 | A | G | A | G | -0.01321 | 0.0429 | 19 | 11955767 |
| rs12501515 | A | G | A | G | -0.07896 | 0.0079 | 4 | 72592838 |
| rs1260326 | C | T | C | T | 0.019719 | 0.0102 | 2 | 27730940 |
| rs12775091 | T | C | T | C | 0.015562 | -0.0173 | 10 | 91524012 |
| rs13108245 | G | A | G | A | -0.01222 | -0.0379 | 4 | 57790205 |
| rs13137398 | T | A | T | A | 0.030729 | -0.091 | 4 | 71902005 |
| rs13147721 | A | G | A | G | -0.03275 | -0.0861 | 4 | 72127321 |
| rs1321247 | T | A | T | A | -0.02218 | -0.0265 | 6 | 25662873 |
| rs13294734 | T | C | T | C | 0.012568 | -0.0318 | 9 | 80710910 |
| rs1343776 | A | G | A | G | 0.018076 | 0.1029 | 1 | 41757718 |
| rs138335 | G | C | G | C | -0.01377 | 0.0248 | 22 | 41227086 |
| rs1384687 | A | G | A | G | -0.01687 | -1.00E-04 | 8 | 61525963 |
| rs1396206 | T | A | T | A | -0.01247 | -0.1127 | 12 | 24576859 |
| s14200440 | C | A | C | A | -0.031 | -0.1942 | 14 | 50829560 |
| s14215891 | A | G | A | G | 0.026284 | 0.0422 | 19 | 11190534 |
| s14740852 | T | C | T | C | 0.043604 | 0.1028 | 11 | 70529949 |
| s14802228 | G | A | G | A | 0.053223 | -0.3886 | 11 | 14810340 |
| rs1496044 | A | G | A | G | -0.01696 | 0.0023 | 1 | 152144275 |
| rs1548546 | A | G | A | G | 0.011336 | 0.1422 | 19 | 13111374 |
| rs1558902 | A | T | A | T | 0.011521 | 0.0186 | 16 | 53803574 |

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|------------|---|---|---|---|----------|-----------|----|-----------|
| rs1684600 | T | C | T | C | -0.01253 | 0.068 | 16 | 4594671 |
| rs16846771 | A | G | A | G | 0.044916 | -0.1006 | 4 | 72514252 |
| rs16848425 | T | C | T | C | -0.05322 | 0.0984 | 4 | 73515825 |
| rs1693457 | T | C | T | C | -0.01707 | -0.0213 | 4 | 100236762 |
| rs17460167 | T | G | T | G | -0.01699 | 0.0332 | 11 | 13901821 |
| rs17473257 | A | G | A | G | -0.06114 | 0.0715 | 11 | 14283186 |
| rs1790309 | A | G | A | G | -0.05687 | -0.0843 | 11 | 71109015 |
| rs1792211 | C | T | C | T | -0.02232 | -0.049 | 11 | 71013706 |
| rs1800588 | T | C | T | C | -0.0305 | 0.0612 | 15 | 58723675 |
| rs1800775 | A | C | A | C | -0.01742 | 0.0575 | 16 | 56995236 |
| rs1858889 | C | A | C | A | 0.013451 | -0.0096 | 7 | 107117447 |
| rs1871395 | G | A | G | A | -0.02037 | 0.0153 | 12 | 21352315 |
| s18869147 | A | T | A | T | 0.066441 | -0.3304 | 11 | 14374892 |
| rs1887407 | A | G | A | G | 0.024458 | -0.0609 | 20 | 62446569 |
| s18917276 | T | G | T | G | -0.03882 | -0.0048 | 11 | 14199740 |
| s18991326 | T | C | T | C | -0.0455 | -0.048 | 11 | 14922540 |
| rs1949633 | C | T | C | T | 0.011416 | 0.0264 | 3 | 153758806 |
| rs2035816 | G | A | G | A | 0.021481 | 0.0163 | 4 | 100508556 |
| rs2037511 | A | G | A | G | 0.017662 | -0.1612 | 18 | 61366207 |
| rs2068888 | A | G | A | G | 0.011259 | -8.00E-04 | 10 | 94839642 |
| rs2074735 | C | G | C | G | 0.029267 | -0.0183 | 22 | 31535872 |
| rs2186773 | C | T | C | T | 0.101839 | 0.0471 | 11 | 71235194 |
| rs2229742 | C | G | C | G | -0.02498 | -0.0563 | 21 | 16339172 |
| rs2245133 | C | T | C | T | -0.02129 | 0.0501 | 6 | 131931092 |
| rs2271828 | A | G | A | G | 0.015289 | -0.0047 | 11 | 15261826 |
| rs2278892 | G | C | G | C | 0.022593 | -0.1095 | 4 | 72413746 |
| rs2297991 | C | T | C | T | 0.012755 | 0.0113 | 10 | 113913222 |
| rs2351060 | G | C | G | C | 0.018312 | -0.0801 | 11 | 15665794 |
| rs2365518 | C | T | C | T | -0.08661 | 0.0167 | 4 | 72740803 |
| rs2398113 | G | A | G | A | -0.01176 | 0.0557 | 10 | 10078742 |
| rs2494429 | G | A | G | A | -0.01485 | -0.1537 | 1 | 2339395 |
| rs2595644 | T | G | T | G | -0.01226 | -0.0154 | 7 | 43980540 |
| rs261291 | C | T | C | T | -0.02612 | -0.0449 | 15 | 58680178 |
| rs2710651 | A | G | A | G | -0.01159 | 0.0471 | 2 | 63166379 |
| rs2756119 | A | G | A | G | 0.012143 | -0.0476 | 14 | 104001517 |
| rs2762943 | G | T | G | T | 0.048255 | -0.0609 | 20 | 52790786 |
| rs2807834 | G | T | G | T | -0.01506 | -0.0507 | 1 | 220970593 |
| rs2843547C | A | G | A | G | -0.01187 | 0.0225 | 12 | 133067473 |
| rs2847500 | A | G | A | G | -0.02255 | 0.1226 | 11 | 120114421 |
| rs2870307 | G | A | G | A | -0.01272 | 0.0462 | 20 | 52698572 |
| rs28888131 | A | G | A | G | 0.014918 | -0.0142 | 16 | 56991624 |
| rs296381 | T | C | T | C | -0.06111 | -0.0205 | 19 | 48371102 |
| rs3114045 | C | T | C | T | -0.02217 | -0.0219 | 4 | 100252560 |
| rs325393 | T | G | T | G | -0.01365 | 0.0114 | 15 | 100229260 |
| rs3418689C | G | A | G | A | -0.01569 | 0.0304 | 3 | 141720712 |
| rs34726834 | T | C | T | C | 0.014013 | -0.0627 | 8 | 25889606 |
| rs34760417 | T | C | T | C | 0.067437 | 0.018 | 4 | 72825003 |
| rs35270497 | T | C | T | C | 0.015672 | 0.042 | 2 | 38259872 |
| rs35313547 | C | T | C | T | 0.015679 | -0.0665 | 19 | 58352806 |
| rs35823191 | C | T | C | T | -0.02326 | -0.0971 | 1 | 17560123 |
| rs3732220 | A | G | A | G | -0.04784 | -0.1624 | 2 | 234627048 |
| rs3829251 | A | G | A | G | -0.11445 | 0.0379 | 11 | 71194559 |
| rs3924150 | T | C | T | C | 0.011257 | 0.0098 | 2 | 16228604 |
| rs4364259 | A | G | A | G | 0.017241 | 0.0348 | 4 | 15892159 |
| rs4481150 | C | T | C | T | 0.01374 | 0.0104 | 3 | 52837793 |
| rs4575545 | A | G | A | G | -0.01517 | 0.0834 | 16 | 79755446 |
| rs4580037 | C | A | C | A | -0.01356 | -0.0749 | 13 | 55702646 |
| rs533617 | C | T | C | T | 0.031343 | -0.0729 | 2 | 21233972 |

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|------------|---|---|---|---|----------|---------|----|-----------|
| rs5566894C | A | G | A | G | -0.01384 | 0.0969 | 1 | 155014426 |
| rs5582999C | C | T | C | T | -0.01819 | 0.1121 | 15 | 63790642 |
| rs562338 | G | A | G | A | -0.016 | 0.0267 | 2 | 21288321 |
| rs5633686C | A | G | A | G | -0.05348 | -0.3502 | 11 | 14478516 |
| rs57601828 | T | A | T | A | 0.011542 | -0.0568 | 12 | 93250469 |
| rs57631352 | G | A | G | A | -0.01255 | 0.1312 | 19 | 4338173 |
| rs5770794 | T | C | T | C | -0.01331 | 0.0195 | 22 | 50880781 |
| rs58038553 | G | A | G | A | 0.02093 | 0.1262 | 15 | 58574324 |
| rs58387006 | C | A | C | A | -0.01357 | -0.0477 | 2 | 32579999 |
| rs6013892 | A | C | A | C | 0.030816 | -0.1155 | 20 | 52724216 |
| rs60144015 | A | C | A | C | -0.01292 | -0.0468 | 1 | 41845246 |
| rs6123359 | G | A | G | A | 0.035801 | -0.0019 | 20 | 52714706 |
| rs6129648 | G | A | G | A | 0.014063 | -0.0332 | 20 | 39231118 |
| rs61698755 | C | T | C | T | -0.01147 | -0.0175 | 17 | 79257880 |
| rs61747728 | T | C | T | C | 0.030306 | 0.0327 | 1 | 179526214 |
| rs61813875 | G | C | G | C | 0.082129 | 0.2126 | 1 | 152536650 |
| rs6188403C | C | T | C | T | 0.064403 | 0.0362 | 11 | 14444543 |
| rs61891388 | G | T | G | T | 0.012629 | -0.0674 | 11 | 66079818 |
| rs62007295 | A | G | A | G | -0.01242 | 0.0236 | 15 | 77711719 |
| rs635634 | T | C | T | C | -0.01505 | 0.02 | 9 | 136155000 |
| rs6438900 | G | C | G | C | 0.015049 | 0.1077 | 3 | 125148287 |
| rs6445969 | T | C | T | C | -0.01259 | -0.0026 | 3 | 58301336 |
| rs6486150 | A | G | A | G | 0.034631 | -0.0891 | 11 | 13883385 |
| rs6600876 | G | T | G | T | -0.03124 | -0.0397 | 4 | 69956930 |
| rs6672758 | T | C | T | C | 0.016248 | 0.0627 | 1 | 230303512 |
| rs6827519 | A | G | A | G | 0.014212 | -0.162 | 4 | 74466409 |
| rs6834488 | T | C | T | C | -0.01445 | 0.1033 | 4 | 88178919 |
| rs7012637 | A | G | A | G | 0.014903 | 0.0471 | 8 | 9173209 |
| rs7116978 | C | T | C | T | -0.07691 | -0.0556 | 11 | 14881771 |
| rs7256200 | T | G | T | G | -0.02149 | 0.1095 | 19 | 45415935 |
| rs72645665 | A | G | A | G | -0.09279 | 0.0328 | 4 | 72703145 |
| rs72704884 | C | T | C | T | 0.022335 | 0.1052 | 1 | 153016588 |
| rs727857 | A | G | A | G | -0.01205 | 0.0801 | 2 | 58981967 |
| rs729417 | A | G | A | G | 0.015926 | 0.0461 | 11 | 15615390 |
| rs7306334 | T | C | T | C | 0.012895 | 0.04 | 12 | 34482900 |
| rs73413596 | C | T | C | T | 0.022347 | 0.0566 | 12 | 111582630 |
| rs7412 | T | C | T | C | 0.03113 | -0.0756 | 19 | 45412079 |
| rs742493 | C | T | C | T | 0.018353 | -0.0485 | 6 | 40998167 |
| rs7528419 | G | A | G | A | 0.021539 | -0.0229 | 1 | 109817192 |
| rs75604577 | A | C | A | C | -0.04337 | 0.1973 | 11 | 71033252 |
| rs7569755 | A | G | A | G | 0.01364 | 0.0041 | 2 | 118648261 |
| rs75741381 | G | C | G | C | -0.01627 | -0.1718 | 7 | 100809458 |
| rs7580771 | T | G | T | G | -0.01656 | 0.1197 | 2 | 101428119 |
| rs76277448 | T | C | T | C | 0.060955 | -0.2118 | 11 | 14540311 |
| rs7652808 | G | T | G | T | -0.02129 | -0.0019 | 3 | 85603643 |
| rs7712001 | G | T | G | T | 0.011939 | 0.0164 | 5 | 148020950 |
| rs77532868 | T | C | T | C | 0.025956 | -0.0627 | 10 | 88081438 |
| rs77697233 | T | C | T | C | 0.015572 | 0.1785 | 10 | 5246125 |
| rs7784802 | T | A | T | A | 0.01332 | 0.0789 | 7 | 64017227 |
| rs77924615 | A | G | A | G | -0.01525 | -0.0574 | 16 | 20392332 |
| rs77960347 | G | A | G | A | -0.05257 | -0.2571 | 18 | 47109955 |
| rs7864991C | A | T | A | T | -0.01914 | 0.0971 | 4 | 3482213 |
| rs78886843 | T | C | T | C | -0.02506 | 0.0326 | 1 | 152412328 |
| rs7955128 | T | A | T | A | 0.013062 | 0.0234 | 12 | 38684121 |
| rs8018720 | C | G | C | G | -0.0345 | -0.0338 | 14 | 39556185 |
| rs80240064 | C | T | C | T | -0.03612 | 0.0567 | 11 | 15290531 |
| rs804281 | G | A | G | A | 0.015895 | -0.0643 | 8 | 11611865 |
| rs8053548 | C | T | C | T | 0.015765 | -0.0522 | 16 | 11889059 |

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|-----------|---|---|---|---|----------|---------|----|-----------|
| rs8107974 | T | A | T | A | 0.035567 | 0.0073 | 19 | 19388500 |
| rs8121940 | G | C | G | C | -0.04356 | -0.0489 | 20 | 52742306 |
| rs9375037 | C | A | C | A | 0.011706 | 0.0135 | 6 | 121856794 |
| rs9409266 | A | G | A | G | -0.01678 | -0.1225 | 9 | 125745042 |
| rs964184 | C | G | C | G | 0.040685 | 0.019 | 11 | 116648917 |
| rs9847248 | A | G | A | G | -0.01231 | 0.0815 | 3 | 18804655 |
| rs986649 | G | A | G | A | 0.012864 | 0.0521 | 5 | 118668050 |
| rs9946771 | T | C | T | C | -0.0234 | -0.0242 | 18 | 28918628 |

for the effect of VD on PCOS

| se.outcome | val.outcome | se.exposure | val.exposure | mr | keep |
|------------|-------------|-------------|--------------|-------|------|
| 0.1961 | 0.3972 | 0.006833 | 1.21E-17 | TRUE | |
| 0.0681 | 0.9568 | 0.002351 | 1.08E-09 | TRUE | |
| 0.0574 | 0.8772 | 0.002056 | 2.15E-08 | TRUE | |
| 0.0642 | 0.583899 | 0.002476 | 4.66E-25 | TRUE | |
| 0.074 | 0.4077 | 0.002644 | 7.34E-11 | TRUE | |
| 0.0609 | 0.1776 | 0.00218 | 7.96E-10 | TRUE | |
| 0.0576 | 0.17 | 0.002048 | 4.17E-10 | FALSE | |
| 0.0599 | 0.09955 | 0.002055 | 4.60E-100 | TRUE | |
| 0.064 | 0.9059 | 0.002229 | 9.81E-09 | TRUE | |
| 0.2004 | 0.743401 | 0.005985 | 2.74E-18 | TRUE | |
| 0.4602 | 0.3169 | 0.00779 | 3.95E-10 | TRUE | |
| 0.0642 | 0.705601 | 0.002127 | 7.14E-23 | TRUE | |
| 0.0575 | 0.9399 | 0.002101 | 4.94E-09 | TRUE | |
| 0.1156 | 0.1126 | 0.003215 | 2.07E-08 | TRUE | |
| 0.057 | 0.6878 | 0.00203 | 3.84E-09 | TRUE | |
| 0.0633 | 0.3153 | 0.002341 | 7.97E-14 | TRUE | |
| 0.0592 | 0.04827 | 0.002029 | 6.06E-16 | TRUE | |
| 0.11 | 0.000615 | 0.004674 | 3.40E-38 | TRUE | |
| 0.1895 | 0.6557 | 0.007048 | 7.55E-24 | TRUE | |
| 0.0765 | 0.3396 | 0.002716 | 1.30E-16 | TRUE | |
| 0.1453 | 0.5277 | 0.004982 | 2.36E-56 | TRUE | |
| 0.098 | 0.4416 | 0.002983 | 9.72E-17 | TRUE | |
| 0.1052 | 0.5306 | 0.003336 | 6.75E-12 | TRUE | |
| 0.2623 | 0.6031 | 0.00886 | 1.00E-200 | TRUE | |
| 0.3514 | 0.5919 | 0.006967 | 1.62E-17 | TRUE | |
| 0.1403 | 0.2677 | 0.008655 | 5.52E-09 | TRUE | |
| 0.0859 | 0.8808 | 0.002581 | 4.85E-08 | TRUE | |
| 0.103 | 0.9565 | 0.003634 | 4.56E-14 | TRUE | |
| 0.0599 | 0.4478 | 0.002095 | 1.01E-10 | TRUE | |
| 0.0705 | 0.05423 | 0.002801 | 3.40E-08 | TRUE | |
| 0.057 | 0.07905 | 0.002064 | 2.65E-29 | TRUE | |
| 0.0593 | 0.6011 | 0.002106 | 7.61E-12 | TRUE | |
| 0.0736 | 0.5632 | 0.003091 | 8.16E-09 | TRUE | |
| 0.0626 | 0.4098 | 0.002236 | 3.32E-10 | TRUE | |
| 0.0636 | 0.9118 | 0.002391 | 5.22E-19 | TRUE | |
| 0.0576 | 0.03944 | 0.002037 | 9.56E-09 | TRUE | |
| 0.0602 | 0.4765 | 0.002115 | 4.18E-10 | TRUE | |
| 0.0586 | 0.8921 | 0.002069 | 1.00E-200 | TRUE | |
| 0.0596 | 0.8646 | 0.002074 | 1.96E-21 | TRUE | |
| 0.0624 | 0.7813 | 0.002477 | 3.33E-10 | TRUE | |
| 0.0592 | 0.5219 | 0.002086 | 4.63E-09 | TRUE | |
| 0.1011 | 0.3684 | 0.004122 | 9.04E-14 | TRUE | |
| 0.0806 | 0.2855 | 0.002834 | 7.03E-31 | TRUE | |
| 0.0905 | 0.77 | 0.003366 | 4.36E-11 | TRUE | |
| 0.0569 | 0.5761 | 0.002058 | 1.02E-09 | TRUE | |
| 0.0691 | 0.1364 | 0.00245 | 1.62E-13 | TRUE | |
| 0.0588 | 0.6738 | 0.002151 | 1.56E-10 | TRUE | |
| 0.0645 | 0.9984 | 0.002997 | 1.82E-08 | TRUE | |
| 0.057 | 0.04794 | 0.002066 | 1.59E-09 | FALSE | |
| 0.1996 | 0.3306 | 0.005596 | 3.01E-08 | TRUE | |
| 0.0925 | 0.6482 | 0.003234 | 4.43E-16 | TRUE | |
| 0.1227 | 0.402 | 0.006446 | 1.34E-11 | TRUE | |
| 0.1522 | 0.01066 | 0.008765 | 1.26E-09 | TRUE | |
| 0.0798 | 0.9773 | 0.002942 | 8.29E-09 | TRUE | |
| 0.0602 | 0.0181 | 0.002069 | 4.25E-08 | TRUE | |
| 0.0576 | 0.7466 | 0.002066 | 2.48E-08 | TRUE | |

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|--------|----------|----------|-----------|------|
| 0.0658 | 0.3011 | 0.002217 | 1.59E-08 | TRUE |
| 0.1046 | 0.3363 | 0.002865 | 2.17E-55 | TRUE |
| 0.1042 | 0.3449 | 0.004143 | 9.15E-38 | TRUE |
| 0.0728 | 0.7696 | 0.002656 | 1.31E-10 | TRUE |
| 0.0862 | 0.7002 | 0.002807 | 1.41E-09 | TRUE |
| 0.2211 | 0.7466 | 0.0078 | 4.59E-15 | TRUE |
| 0.1057 | 0.425 | 0.004216 | 1.85E-41 | TRUE |
| 0.0885 | 0.5799 | 0.003175 | 2.08E-12 | TRUE |
| 0.0656 | 0.3512 | 0.002469 | 4.73E-35 | TRUE |
| 0.0567 | 0.3103 | 0.002029 | 9.23E-18 | TRUE |
| 0.0569 | 0.8655 | 0.002031 | 3.49E-11 | TRUE |
| 0.0636 | 0.8102 | 0.002827 | 5.72E-13 | TRUE |
| 0.176 | 0.060451 | 0.005588 | 1.33E-32 | TRUE |
| 0.1163 | 0.6006 | 0.004204 | 5.97E-09 | TRUE |
| 0.1878 | 0.9798 | 0.007 | 2.93E-08 | TRUE |
| 0.2864 | 0.8669 | 0.008038 | 1.51E-08 | TRUE |
| 0.0595 | 0.657301 | 0.002086 | 4.45E-08 | TRUE |
| 0.1663 | 0.9218 | 0.003665 | 4.61E-09 | TRUE |
| 0.0778 | 0.03822 | 0.002727 | 9.41E-11 | TRUE |
| 0.0569 | 0.9894 | 0.002037 | 3.25E-08 | TRUE |
| 0.0816 | 0.8222 | 0.00412 | 1.22E-12 | TRUE |
| 0.1203 | 0.695401 | 0.005142 | 2.58E-87 | TRUE |
| 0.0908 | 0.5348 | 0.003314 | 4.75E-14 | TRUE |
| 0.0688 | 0.4661 | 0.00274 | 7.80E-15 | TRUE |
| 0.0806 | 0.9536 | 0.002706 | 1.60E-08 | TRUE |
| 0.0674 | 0.1041 | 0.002381 | 2.37E-21 | TRUE |
| 0.0601 | 0.8503 | 0.002256 | 1.57E-08 | TRUE |
| 0.0679 | 0.2383 | 0.002509 | 2.90E-13 | TRUE |
| 0.132 | 0.8992 | 0.007102 | 3.28E-34 | TRUE |
| 0.0601 | 0.3535 | 0.002058 | 1.10E-08 | TRUE |
| 0.0747 | 0.03971 | 0.002673 | 2.80E-08 | TRUE |
| 0.06 | 0.7972 | 0.002097 | 4.97E-09 | TRUE |
| 0.0583 | 0.4409 | 0.002125 | 9.78E-35 | TRUE |
| 0.0572 | 0.4099 | 0.002035 | 1.23E-08 | TRUE |
| 0.0588 | 0.4187 | 0.00211 | 8.71E-09 | TRUE |
| 0.0962 | 0.5266 | 0.003948 | 2.38E-34 | TRUE |
| 0.0629 | 0.4202 | 0.002187 | 5.66E-12 | TRUE |
| 0.0578 | 0.697199 | 0.002148 | 3.29E-08 | TRUE |
| 0.0806 | 0.1283 | 0.003087 | 2.77E-13 | TRUE |
| 0.0571 | 0.4185 | 0.002049 | 5.45E-10 | TRUE |
| 0.0738 | 0.8471 | 0.002608 | 1.07E-08 | TRUE |
| 0.0792 | 0.7953 | 0.002763 | 2.30E-108 | TRUE |
| 0.085 | 0.7967 | 0.00298 | 1.00E-13 | TRUE |
| 0.0612 | 0.8524 | 0.002277 | 2.03E-09 | TRUE |
| 0.0661 | 0.6451 | 0.002318 | 1.33E-11 | TRUE |
| 0.0621 | 0.3125 | 0.002349 | 2.42E-09 | TRUE |
| 0.1091 | 0.8689 | 0.004059 | 5.58E-62 | TRUE |
| 0.0696 | 0.5456 | 0.002682 | 5.08E-09 | TRUE |
| 0.0812 | 0.4126 | 0.002802 | 2.19E-08 | TRUE |
| 0.0591 | 0.1007 | 0.002141 | 1.65E-27 | TRUE |
| 0.1074 | 0.1306 | 0.003633 | 1.31E-39 | TRUE |
| 0.0642 | 0.5547 | 0.002981 | 1.00E-200 | TRUE |
| 0.0573 | 0.8645 | 0.002063 | 4.82E-08 | TRUE |
| 0.0691 | 0.614899 | 0.002567 | 1.86E-11 | TRUE |
| 0.0568 | 0.8541 | 0.002041 | 1.69E-11 | TRUE |
| 0.0617 | 0.1768 | 0.002212 | 7.05E-12 | TRUE |
| 0.0642 | 0.2437 | 0.002251 | 1.68E-09 | TRUE |
| 0.1139 | 0.5219 | 0.005146 | 1.13E-09 | TRUE |

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|--------|----------|----------|-----------|-------|
| 0.0718 | 0.1776 | 0.002538 | 4.90E-08 | TRUE |
| 0.0584 | 0.05483 | 0.00214 | 1.89E-17 | TRUE |
| 0.0727 | 0.714 | 0.002631 | 1.20E-09 | TRUE |
| 0.1568 | 0.0255 | 0.005342 | 1.37E-23 | TRUE |
| 0.0574 | 0.3219 | 0.002082 | 2.96E-08 | FALSE |
| 0.06 | 0.02869 | 0.002221 | 1.58E-08 | TRUE |
| 0.0588 | 0.7402 | 0.002211 | 1.74E-09 | TRUE |
| 0.0958 | 0.1876 | 0.00304 | 5.81E-12 | TRUE |
| 0.0673 | 0.4787 | 0.002457 | 3.32E-08 | TRUE |
| 0.0888 | 0.1931 | 0.004009 | 1.51E-14 | TRUE |
| 0.0574 | 0.4144 | 0.002044 | 2.64E-10 | TRUE |
| 0.0903 | 0.9831 | 0.003403 | 7.07E-26 | TRUE |
| 0.0604 | 0.5823 | 0.002106 | 2.44E-11 | TRUE |
| 0.0576 | 0.7612 | 0.002051 | 2.25E-08 | TRUE |
| 0.1182 | 0.782299 | 0.005269 | 8.83E-09 | TRUE |
| 0.3067 | 0.4882 | 0.006589 | 1.16E-35 | TRUE |
| 0.0649 | 0.576901 | 0.002956 | 3.12E-105 | TRUE |
| 0.0566 | 0.2343 | 0.002044 | 6.47E-10 | TRUE |
| 0.0606 | 0.697 | 0.002244 | 3.12E-08 | TRUE |
| 0.0713 | 0.779701 | 0.002604 | 7.55E-09 | TRUE |
| 0.0621 | 0.08275 | 0.00234 | 1.27E-10 | TRUE |
| 0.0696 | 0.9704 | 0.002219 | 1.41E-08 | TRUE |
| 0.1344 | 0.5072 | 0.004877 | 1.24E-12 | TRUE |
| 0.0571 | 0.4871 | 0.002036 | 3.94E-53 | TRUE |
| 0.0648 | 0.3337 | 0.002555 | 2.04E-10 | TRUE |
| 0.0569 | 0.004405 | 0.002036 | 2.94E-12 | TRUE |
| 0.0604 | 0.0871 | 0.002059 | 2.26E-12 | TRUE |
| 0.0647 | 0.4673 | 0.002053 | 3.93E-13 | TRUE |
| 0.0585 | 0.3417 | 0.0021 | 1.00E-200 | TRUE |
| 0.0772 | 0.1562 | 0.003162 | 1.08E-11 | TRUE |
| 0.0706 | 0.6423 | 0.002584 | 1.00E-200 | TRUE |
| 0.0768 | 0.171 | 0.003458 | 1.05E-10 | TRUE |
| 0.057 | 0.1599 | 0.002099 | 9.27E-09 | TRUE |
| 0.0684 | 0.5009 | 0.002486 | 1.48E-10 | TRUE |
| 0.0575 | 0.4871 | 0.002076 | 5.27E-10 | TRUE |
| 0.1207 | 0.639 | 0.003889 | 9.15E-09 | TRUE |
| 0.1274 | 0.553 | 0.00372 | 5.81E-17 | TRUE |
| 0.0967 | 0.616401 | 0.003206 | 1.04E-08 | TRUE |
| 0.0693 | 0.741199 | 0.002432 | 8.17E-19 | TRUE |
| 0.158 | 0.2118 | 0.007157 | 1.36E-09 | TRUE |
| 0.0695 | 0.9525 | 0.002256 | 1.49E-09 | TRUE |
| 0.0798 | 0.03127 | 0.002865 | 1.36E-08 | TRUE |
| 0.0685 | 0.080369 | 0.002665 | 5.15E-10 | TRUE |
| 0.312 | 0.4972 | 0.007138 | 1.35E-17 | TRUE |
| 0.0636 | 0.9762 | 0.002126 | 1.36E-23 | TRUE |
| 0.0587 | 0.779701 | 0.002062 | 7.05E-09 | TRUE |
| 0.1602 | 0.695401 | 0.004563 | 1.28E-08 | TRUE |
| 0.0814 | 0.02838 | 0.002816 | 3.19E-08 | TRUE |
| 0.0633 | 0.213 | 0.002116 | 3.06E-10 | TRUE |
| 0.0685 | 0.4022 | 0.00259 | 3.94E-09 | TRUE |
| 0.3354 | 0.4434 | 0.00906 | 6.53E-09 | TRUE |
| 0.0872 | 0.2654 | 0.003322 | 8.33E-09 | TRUE |
| 0.0919 | 0.723 | 0.003969 | 2.70E-10 | TRUE |
| 0.0575 | 0.684 | 0.002039 | 1.48E-10 | FALSE |
| 0.0802 | 0.673101 | 0.002661 | 1.94E-38 | TRUE |
| 0.1725 | 0.7426 | 0.004839 | 8.40E-14 | TRUE |
| 0.0805 | 0.4242 | 0.00206 | 1.20E-14 | TRUE |
| 0.0919 | 0.5705 | 0.002845 | 3.00E-08 | TRUE |

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|--------|--------|----------|----------|------|
| 0.1147 | 0.9491 | 0.003823 | 1.36E-20 | TRUE |
| 0.0676 | 0.4692 | 0.002549 | 1.77E-65 | TRUE |
| 0.057 | 0.8122 | 0.002054 | 1.21E-08 | TRUE |
| 0.0756 | 0.1052 | 0.002947 | 1.24E-08 | TRUE |
| 0.0813 | 0.8151 | 0.002989 | 3.50E-42 | TRUE |
| 0.0601 | 0.1751 | 0.002245 | 4.19E-08 | TRUE |
| 0.0587 | 0.375 | 0.002178 | 3.51E-09 | TRUE |
| 0.1059 | 0.8193 | 0.004077 | 9.47E-09 | TRUE |