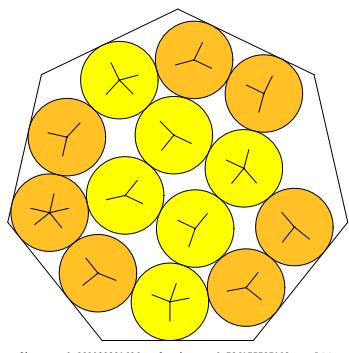


$N = 13$

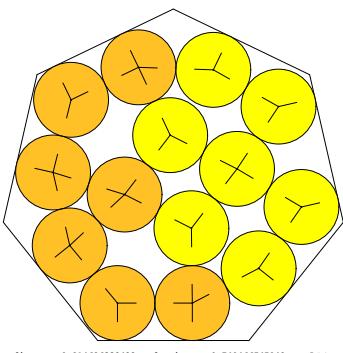
13 circles in a heptagon



radius = 0.222092931626
ratio = 4.502619658709
density = 0.736175737109
contacts = 27

$N = 14$

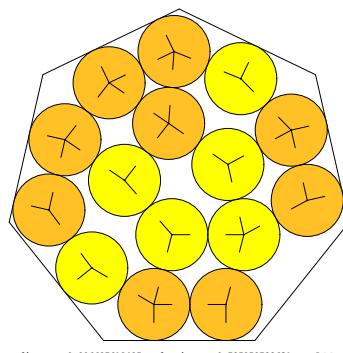
14 circles in a heptagon



radius = 0.2144636889499
ratio = 4.659031363783
density = 0.740466545043
contacts = 29

$N = 15$

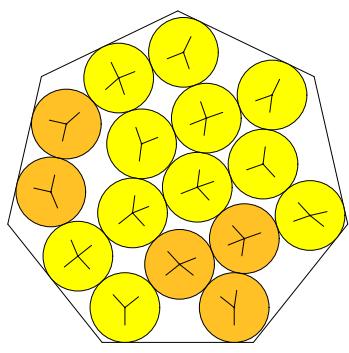
15 circles in a heptagon



radius = 0.206627612425
ratio = 4.839624231542
density = 0.735252733681
contacts = 31

$N = 16$

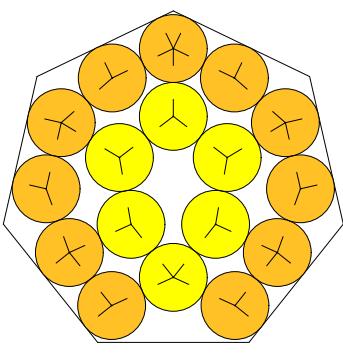
16 circles in a heptagon



radius = 0.199792679302
ratio = 5.005188395752
density = 0.733242785448
contacts = 33

$N = 17$

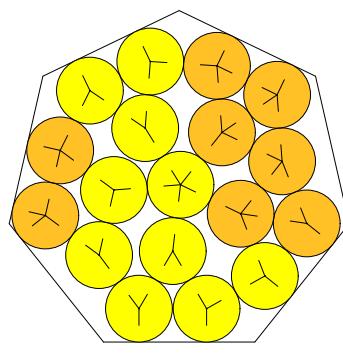
17 circles in a heptagon



radius = 0.194450028480
ratio = 5.142709455062
density = 0.737961351348
contacts = 35

$N = 18$

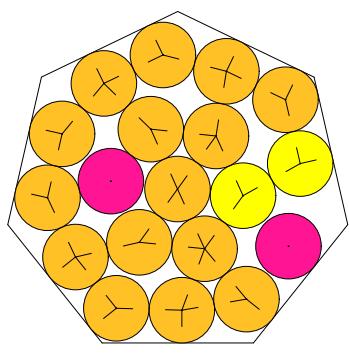
18 circles in a heptagon



radius = 0.191466926357
ratio = 5.222834141783
density = 0.757580365076
contacts = 37

$N = 19$

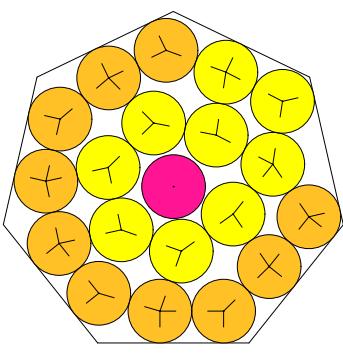
19 circles in a heptagon



radius = 0.187920598990
ratio = 5.321396405591
density = 0.770319782358
contacts = 35

$N = 20$

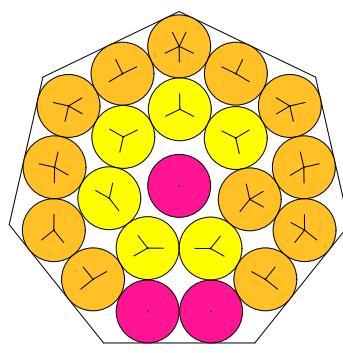
20 circles in a heptagon



radius = 0.182622215241
ratio = 5.475785071823
density = 0.765783285064
contacts = 39

$N = 21$

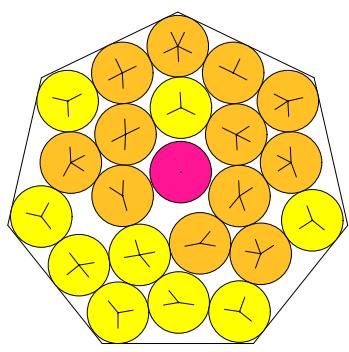
21 circles in a heptagon



radius = 0.180355045441
ratio = 5.544618935149
density = 0.784232003098
contacts = 37

$N = 22$

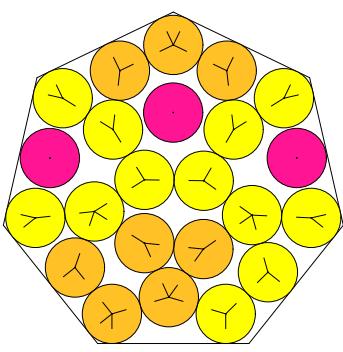
22 circles in a heptagon



radius = 0.176438418982
ratio = 5.667699845488
density = 0.786280798030
contacts = 43

$N = 23$

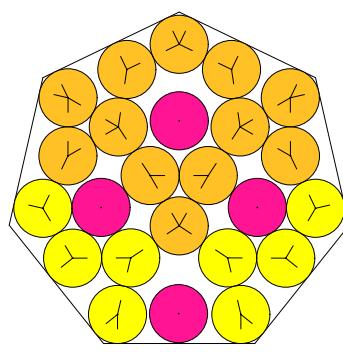
23 circles in a heptagon



radius = 0.16990525912
ratio = 5.882680782546
density = 0.763037610251
contacts = 41

$N = 24$

24 circles in a heptagon



radius = 0.165584178817
ratio = 6.002971033023
density = 0.764623110357
contacts = 41