| | | | |
|---|---|---|---|
| **General information** | | | |
| Remover name | Bamboo Sustainable World | | |
| Project code | BSW-L-001 | | |
| Project name | Bamboo Congo - BSWC GmbH | | |
| Location | Kipuka, Democratic Republic of the Congo | | |
| Area | 200 | ha | |
| Starting year | 2025 | | year of planting |
| Duration | 20 | years | project duration |
| Holding pool | 20% | | freed up when measurements confirm projection pathways |
| Additional holding pool | 21% | | accounting for possible overestimation in AGB reference values |
| Project emissions | 22.50 | tCO2-eq | LCA estimate, or specified when >20% |
| | | | |
| **Per hectare** | | | |
| Baseline TEC | 169 | tCO2/ha | Soil Organic Carbon and Above Ground Carbon, following CDM AR-ACM0003 |
| Reference capacity | 1,007 | tCO2/ha | Using CEDA and Soil sample data |
| Storage potential | 838 | tCO2/ha | Projection -/- baseline |
| | | | |
| **Per project** | | | |
| Projected storage | 167,591 | tCO2 | storage potential per ha x area |
| LCA emissions | 22 | tCO2 | project related emissions |
| Net storage potential | 167,568 | tCO2 | project storage -/- emissions over 20 years |
| | | | |
| **Potential Carbon Removal Units** | | | |
| Units first 12 years | 100,541 | units | 12/20 x net storage potential |
| Holding Pool | 20,108 | units | 20% of the first 12 years |
| Additional holding pool | 20,722 | units | |
| Potential units issued | 59,711 | units | |

| Field Code | Field name | Size (ha) | Owner | | |
|---|---|---|---|---|---|
| **BSW-L-002** | Congo 200 hecta | 200 | BSWC GmbH owner, leased by Richard Sukuta | | |

| # | Field code | Field | Year | Date | Sample depth (cm) | SOC/AGB/REF | Carbon (g/kg) | AGB (tCO2/ha) | Sample/report nr. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 001 | BVUL005-1 | Congo 200 hectares | 2025 | 02/21/2025 | 30 | SOC | 10 | | JEL/STL/OF/03 | |
| 002 | BVUL005-1 | Congo 200 hectares | 2022 | 1/1/2022 | | AGB | | 5.347375 | | 2015-2022 average ESA Satellite data |
| 003 | | #N/A | 1899 | | | | | | | |
| 004 | | #N/A | 1899 | | | | | | | |
| 005 | | #N/A | 1899 | | | | | | | |
| 006 | | #N/A | 1899 | | | | | | | |
| 007 | | #N/A | 1899 | | | | | | | |
| 009 | | #N/A | 1899 | | | | | | | |
| 010 | | #N/A | 1899 | | | | | | | |
| 011 | | #N/A | 1899 | | | | | | | |
| 012 | | #N/A | 1899 | | | | | | | |
| 013 | | #N/A | 1899 | | | | | | | |
| 014 | | | | | | | | | | |
| 015 | | | | | | | | | | |

| AGB measurement from ESA data | | | |
|---|---|---|---|
| 2007 | 3.409 | 1.705 | 6.25 |
| 2010 | 3.17 | 1.585 | 5.811 |
| 2015 | 4.158 | 2.079 | 7.623 |
| 2016 | 4.76 | 2.38 | 8.727 |
| 2017 | 3.17 | 1.585 | 5.811 |
| 2018 | 3.07 | 1.535 | 5.629 |
| 2019 | 2.462 | 1.231 | 4.514 |
| 2020 | 1.953 | 0.977 | 3.581 |
| 2021 | 1.93 | 0.965 | 3.538 |
| 2022 | 1.83 | 0.915 | 3.356 |
| Average | 3.258 | 1.629 | 5.974 |

| Carbon Calculation for | | BSW-L-001 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Surface | 200 | ha | Fields tab | | | | | | | |
| Capacity SOC | 495 | tCO2/ha | References tab | | | | | | | |
| Capacity AGB | 512 | tCO2/ha | References tab | | | | | | | |
| | | | | | | | | | | |
| | 2025 | | 2028 | | 2031 | | 2034 | | 2037 | |
| Measurement average | 10.00 | SOC g/kg | #DIV/0! | SOC g/kg | #DIV/0! | SOC g/kg | #DIV/0! | SOC g/kg | #DIV/0! | SOC g/kg |
| Sample depth | 30 | cm | #DIV/0! | cm | #DIV/0! | cm | #DIV/0! | cm | #DIV/0! | cm |
| Calculation depth | 30 | cm | 30 | cm | 30 | cm | 30 | cm | 30 | cm |
| Soil density | 1.49 | g/cm3 | #DIV/0! | g/cm3 | #DIV/0! | g/cm3 | #DIV/0! | g/cm3 | #DIV/0! | g/cm3 |
| SOC (soil carbon) / ha | 163.4 | tCO2e/ha | #DIV/0! | tCO2e/ha | #DIV/0! | tCO2e/ha | #DIV/0! | tCO2e/ha | #DIV/0! | tCO2e/ha |
| AGB (above ground) / ha | 5.35 | tCO2e/ha | #DIV/0! | tCO2e/ha | #DIV/0! | tCO2e/ha | #DIV/0! | tCO2e/ha | #DIV/0! | tCO2e/ha |
| Storage current | 33,739 | tCO2e | #DIV/0! | tCO2e | #DIV/0! | tCO2e | #DIV/0! | tCO2e | #DIV/0! | tCO2e |
| Storage capacity | 201,330 | tCO2e | #REF! | tCO2e | #REF! | tCO2e | #REF! | tCO2e | #REF! | tCO2e |

| | | | |
|---|---|---|---|
| **Sources** | | | |
| **value** | **source** | **URL** | Notes |
| CEDA aboveground biomass carbon | https://climateee | https://datacedaa | 2018 data |
| SOC | A critical review of the conventional SOC to SOM conversion factor (Geoderma,Volume 156, Issues 3–4, 15 May 2010, Pages 75-83 ) | | |
| Density | Wageningen Ur | https://edepot.wu | We've added these soil density levels to the calculation factors tab |
| | | | |
| **Reference data for capacity** | | | |
| SOC | 495 | tCO2e/ha | |
| SOC reference | 135 | tC/ha | Yuen et al. (2017), Max. based on 70 species from 184 studies [Max 200, min 70, Average 135] |
| AGB | 512 | tCO2e/ha | Average storage potential in above- and below ground biomass, 25% higher clump density (500 vs 400) |
| | | | |
| | 398 | tCO2/ha | Yuen et al. 2017;  Hermis et al. 2014; Deepika et al. 2022 |
| | | | |
| | | | |
| | 1.461 | | |

*Assumptions and used numbers:*

Conversion C in CO2 with 44/12 (= ratio of molecular weight)

Carbon content in biomass 58%

**Overview of the CO2 storage potential in above- and below-ground biomass**

| **Bamboo species** | **ABG carbon total** (incl. culms, branches, leaves) **[t C/ha]** | **BGB carbon total** (incl. rhizomes) **[tC/ha]** | **Total stored carbon** [t C/ha] | **Total stored CO2** [t CO2/ha] | *Source* | | | **Remarks Oncra** | |
|---|---|---|---|---|---|---|---|---|---|
| *Bambusa balcooa* | 61.05 | 11.1 | 72.1 | 264.4 | *Sohel et al. (2015) - Nath et al. (2009)* | link | link | Sohel is only on Vulgaris, Nath mostly (74%) on Vulgaris and Cacharensis | |
| | 51.2 | 5.28 | 56.5 | 207.1 | *Deepika et al. (2022)* | link | | | |
| | 184.4 | 49.4 | 233.8 | 857.4 | *Toriyal et al. (2013)* | link | | Seems theoretical maximum, not operational reality. | Therefore excluded from reference value |
| Average | | **21.9** | **120.8** | **443.0** | | | | | |
| *Bambusa vulgaris* | 50.44 | 2.52 | 53.0 | 194.2 | *Sohel et al. (2015)* | | | | |
| | 61.05 | 11.1 | 72.1 | 264.4 | *Sohel et al. (2015) - Nath et al. (2009)* | | | | |
| | 53 | 9.8 | 62.8 | 230.4 | *Nath et al. (2015) - Uchimura, 1978* | | | | |
| | 58.12 | 16.9 | 75.1 | 275.2 | *Toriyal et al. (2013)* | | | | |
| Average | | **10.1** | **65.7** | **241.1** | | | | | |

| **Bamboo species** | **Participation per area [%]** | **Total stored CO2** [t CO2/ha] |
|---|---|---|
| Bambusa balcooa | 83.33% | 443.0 |
| Bambusa vulgaris | 16.67% | 241.1 |
| | 100% | **409.3** |

**Remarks** 125 vs 96 (increase on holding pool)

*Estimation of carbon stored in below ground biomass:*

| | **Participation per area [%]** | **BGC** a | b | **[Mg C/ha]** | |
|---|---|---|---|---|---|
| *Bambusa balcooa* | 83% | 0.3714 | 0.8256 | *Yuen et al. (2017), p.123 (e) Bambusa sp. & G. angustofolia* | |
| *Bambusa vulgaris* | 17% | 0.3714 | 0.8256 | *Yuen et al. (2017), p.123 (e) Bambusa sp. & G. angustofolia* | |
| | | **0.6378** | **0.8628** | *Yuen et al. (2017), p.123 (a) all species/groups* | |

| | |
|---|---|
| ***Overview of assessed categories - on plant level (1/2)*** | |
| ***Starting material - Seeds*** | |
| Description | Seeds growning to young |
| Average weight per seed [gr] | *0.25* |
| Supplier of seeds | Forestry Research Institute of Ghana (FORIG) |
| Transport - Pick-up truck [FORIG - Prempeh International | 13 |
| Transport - Plane [Ghana - Congo] | 2239 |
| Transport - Pick-up truck [Kinshasa International Airport - | 514 |
| *Defined as cut-off: impact of seed itself* | |
| | |
| ***Starting material - Soil and pot*** | |
| Description - Soil (from Farm ground) | Sandy loam (Common |
| Average weight of soil used per starting material [kg] | 0.1 |
| Description - Pot | Polypot, 100% PE, virgin |
| Average weight per pot [gr] | 10 |
| Supplier of the pot | Polytex Industries |
| Transport [Accra - Kotoka International Airport] | 11 |
| Transport - Plane [Ghana - Congo] | 2087 |
| Transport - Pick-up truck [Kinshasa International Airport - Farm] | 514 |
| *Defined as cut-off: impact of soil itself, no transport of soil* | |
| | |
| ***Cultivation of young plants*** | |
| Process - planting | by hand |
| Description | Planting of 1 seedling per |
| Duration | ca. 3 months |
| Growth loss | 6% |
| Usage of water per seedling - Rain water [Liter] | 20 |
| *Defined as cut-off: water usage* | |
| | |
| ***Transport from nursery to field*** | |
| Average weight of a young plant [kg] | 95% |
| Transport to field - Total amount of Diesel used [Liter] | 30 |
| | |
| ***Field - Cultivation of plantation*** | |
| Total amount of growing plants (500 plants/ha) | 100000 |
| Growth loss | 10% |
| Process - planting (field) | by hand |

| **Carbon Footprint assessment (ecoinvent 3.10, EF 3.1)** | | |
|---|---|---|
| On plant level (1/2) | | |
| **Category** | **CF in kg CO2-eq.** | ***Remarks*** |
| Seeds (Transport) | 0.001 | |
| Pots (Material, Transport) | 0.060 | |
| Transport to field | 107.3 | - |
| **Per seedling** | **0.06** | Incl. 6% loss |
| **Per plant in field** | **0.001** | *Incl. 10% loss* |
| **All plants in field** | **118** | *500 plants/ha* |
| | | |
| Activities of 20 years (2/2) | | |
| **Category** | **CF in kg CO2-eq.** | ***Remarks*** |
| All plants in field | 118 | *Plantation* |
| Land preparation | 174 | *Workers (for planting)* |
| Maintenance - soil | 7266 | *Forth and back* |
| Land maintenance | 6133 | *Farm manager* |
| Maintenance - Business trips | 8805 | *Forth and back* |
| **Total CF of 20 years** | **22497** | *kg CO2-eq* |
| **Total CF of 20 years** | **22.50** | *t CO2-eq.* |

| ***Overview of assessed categories - activities of 20 years (2/2)*** | |
|---|---|
| ***Land preparation and planting*** | |
| Process - land preparation and planting | by hand |
| Description - working force | Employment of local workers, |
| Transport of workers to the field [km] (walking/ driving) | 20 |
| | |
| ***Maintenance - soil measurement*** | |
| Transport (Kampala - Entebbe International | 190 |
| Transport (Uganda - Congo) [km] | 1971 |
| Transport (Kinshasa International Airport - | 514 |
| Occurring amount (in 20 years) | 7 |
| | |
| ***Land maintenance*** | |
| Process - land maintenance, pruning | by hand, around 15 local workers |
| Process - rainwater [Liter/ha] | 550 |
| Travelling of farm manager (from Kipuka) | 20 |
| *Defined as cut-off: water usage* | |
| | |
| ***Maintenance - Business trips*** | |
| BSWC GmbH | Field visits |
| Transport distance - Car (to plantation) | 514 |
| Transport distance - Plane | 6088 |
| Occurring amount (in 20 years) | 5 |

| from C to CO2 | 3.666666667 | | |
|---|---|---|---|
| soil density | % organic | % organic | soil density |
| 1.59 | 0.5 | 0.25 | 1.59 |
| 1.583 | 0.6 | 0.3 | 1.583 |
| 1.576 | 0.7 | 0.35 | 1.576 |
| 1.569 | 0.8 | 0.4 | 1.569 |
| 1.562 | 0.9 | 0.45 | 1.562 |
| 1.555 | 1 | 0.5 | 1.555 |
| 1.548 | 1.1 | 0.55 | 1.548 |
| 1.541 | 1.2 | 0.6 | 1.541 |
| 1.534 | 1.3 | 0.65 | 1.534 |
| 1.527 | 1.4 | 0.7 | 1.527 |
| 1.52 | 1.5 | 0.75 | 1.52 |
| 1.513 | 1.6 | 0.8 | 1.513 |
| 1.506 | 1.7 | 0.85 | 1.506 |
| 1.499 | 1.8 | 0.9 | 1.499 |
| 1.492 | 1.9 | 0.95 | 1.492 |
| 1.485 | 2 | 1 | 1.485 |
| 1.478 | 2.1 | 1.05 | 1.478 |
| 1.471 | 2.2 | 1.1 | 1.471 |
| 1.464 | 2.3 | 1.15 | 1.464 |
| 1.457 | 2.4 | 1.2 | 1.457 |
| 1.45 | 2.5 | 1.25 | 1.45 |
| 1.444 | 2.6 | 1.3 | 1.444 |
| 1.438 | 2.7 | 1.35 | 1.438 |
| 1.432 | 2.8 | 1.4 | 1.432 |
| 1.426 | 2.9 | 1.45 | 1.426 |
| 1.42 | 3 | 1.5 | 1.42 |
| 1.414 | 3.1 | 1.55 | 1.414 |
| 1.408 | 3.2 | 1.6 | 1.408 |
| 1.402 | 3.3 | 1.65 | 1.402 |
| 1.396 | 3.4 | 1.7 | 1.396 |
| 1.39 | 3.5 | 1.75 | 1.39 |
| 1.385 | 3.6 | 1.8 | 1.385 |
| 1.38 | 3.7 | 1.85 | 1.38 |
| 1.375 | 3.8 | 1.9 | 1.375 |
| 1.37 | 3.9 | 1.95 | 1.37 |
| 1.365 | 4 | 2 | 1.365 |
| 1.36 | 4.1 | 2.05 | 1.36 |
| 1.355 | 4.2 | 2.1 | 1.355 |
| 1.35 | 4.3 | 2.15 | 1.35 |
| 1.345 | 4.4 | 2.2 | 1.345 |
| 1.34 | 4.5 | 2.25 | 1.34 |
| 1.335 | 4.6 | 2.3 | 1.335 |
| 1.33 | 4.7 | 2.35 | 1.33 |
| 1.325 | 4.8 | 2.4 | 1.325 |
| 1.32 | 4.9 | 2.45 | 1.32 |
| 1.315 | 5 | 2.5 | 1.315 |
| 1.31 | 5.1 | 2.55 | 1.31 |
| 1.305 | 5.2 | 2.6 | 1.305 |
| 1.3 | 5.3 | 2.65 | 1.3 |
| 1.295 | 5.4 | 2.7 | 1.295 |
| 1.29 | 5.5 | 2.75 | 1.29 |
| 1.285 | 5.6 | 2.8 | 1.285 |
| 1.28 | 5.7 | 2.85 | 1.28 |
| 1.275 | 5.8 | 2.9 | 1.275 |
| 1.27 | 5.9 | 2.95 | 1.27 |
| 1.265 | 6 | 3 | 1.265 |
| 1.26 | 6.1 | 3.05 | 1.26 |
| 1.255 | 6.2 | 3.1 | 1.255 |
| 1.25 | 6.3 | 3.15 | 1.25 |
| 1.245 | 6.4 | 3.2 | 1.245 |
| 1.24 | 6.5 | 3.25 | 1.24 |
| 1.234 | 6.6 | 3.3 | 1.234 |
| 1.228 | 6.7 | 3.35 | 1.228 |
| 1.222 | 6.8 | 3.4 | 1.222 |
| 1.216 | 6.9 | 3.45 | 1.216 |
| 1.21 | 7 | 3.5 | 1.21 |
| 1.204 | 7.1 | 3.55 | 1.204 |
| 1.198 | 7.2 | 3.6 | 1.198 |
| 1.192 | 7.3 | 3.65 | 1.192 |
| 1.186 | 7.4 | 3.7 | 1.186 |
| 1.18 | 7.5 | 3.75 | 1.18 |
| 1.175 | 7.6 | 3.8 | 1.175 |
| 1.17 | 7.7 | 3.85 | 1.17 |
| 1.165 | 7.8 | 3.9 | 1.165 |
| 1.16 | 7.9 | 3.95 | 1.16 |
| 1.155 | 8 | 4 | 1.155 |
| 1.15 | 8.1 | 4.05 | 1.15 |
| 1.145 | 8.2 | 4.1 | 1.145 |
| 1.14 | 8.3 | 4.15 | 1.14 |
| 1.135 | 8.4 | 4.2 | 1.135 |
| 1.13 | 8.5 | 4.25 | 1.13 |
| 1.126 | 8.6 | 4.3 | 1.126 |
| 1.122 | 8.7 | 4.35 | 1.122 |
| 1.118 | 8.8 | 4.4 | 1.118 |
| 1.114 | 8.9 | 4.45 | 1.114 |
| 1.11 | 9 | 4.5 | 1.11 |
| 1.106 | 9.1 | 4.55 | 1.106 |
| 1.102 | 9.2 | 4.6 | 1.102 |
| 1.098 | 9.3 | 4.65 | 1.098 |
| 1.094 | 9.4 | 4.7 | 1.094 |
| 1.09 | 9.5 | 4.75 | 1.09 |
| 1.086 | 9.6 | 4.8 | 1.086 |
| 1.082 | 9.7 | 4.85 | 1.082 |
| 1.078 | 9.8 | 4.9 | 1.078 |
| 1.074 | 9.9 | 4.95 | 1.074 |
| 1.07 | 10 | 5 | 1.07 |
| 1.066 | 10.1 | 5.05 | 1.066 |
| 1.062 | 10.2 | 5.1 | 1.062 |
| 1.058 | 10.3 | 5.15 | 1.058 |
| 1.054 | 10.4 | 5.2 | 1.054 |
| 1.05 | 10.5 | 5.25 | 1.05 |
| 1.046 | 10.6 | 5.3 | 1.046 |
| 1.042 | 10.7 | 5.35 | 1.042 |
| 1.038 | 10.8 | 5.4 | 1.038 |
| 1.034 | 10.9 | 5.45 | 1.034 |
| 1.03 | 11 | 5.5 | 1.03 |
| 1.026 | 11.1 | 5.55 | 1.026 |
| 1.022 | 11.2 | 5.6 | 1.022 |
| 1.018 | 11.3 | 5.65 | 1.018 |
| 1.014 | 11.4 | 5.7 | 1.014 |
| 1.01 | 11.5 | 5.75 | 1.01 |
| 1.005 | 11.6 | 5.8 | 1.005 |
| 1 | 11.7 | 5.85 | 1 |
| 0.995 | 11.8 | 5.9 | 0.995 |
| 0.99 | 11.9 | 5.95 | 0.99 |
| 0.985 | 12 | 6 | 0.985 |
| 0.98 | 12.1 | 6.05 | 0.98 |
| 0.975 | 12.2 | 6.1 | 0.975 |
| 0.97 | 12.3 | 6.15 | 0.97 |
| 0.965 | 12.4 | 6.2 | 0.965 |
| 0.96 | 12.5 | 6.25 | 0.96 |
| 0.957 | 12.6 | 6.3 | 0.957 |
| 0.954 | 12.7 | 6.35 | 0.954 |
| 0.951 | 12.8 | 6.4 | 0.951 |
| 0.948 | 12.9 | 6.45 | 0.948 |
| 0.945 | 13 | 6.5 | 0.945 |
| 0.942 | 13.1 | 6.55 | 0.942 |
| 0.939 | 13.2 | 6.6 | 0.939 |
| 0.936 | 13.3 | 6.65 | 0.936 |
| 0.933 | 13.4 | 6.7 | 0.933 |
| 0.93 | 13.5 | 6.75 | 0.93 |
| 0.927 | 13.6 | 6.8 | 0.927 |
| 0.924 | 13.7 | 6.85 | 0.924 |
| 0.921 | 13.8 | 6.9 | 0.921 |
| 0.918 | 13.9 | 6.95 | 0.918 |
| 0.915 | 14 | 7 | 0.915 |
| 0.912 | 14.1 | 7.05 | 0.912 |
| 0.909 | 14.2 | 7.1 | 0.909 |
| 0.906 | 14.3 | 7.15 | 0.906 |
| 0.903 | 14.4 | 7.2 | 0.903 |
| 0.9 | 14.5 | 7.25 | 0.9 |
| 0.897 | 14.6 | 7.3 | 0.897 |
| 0.894 | 14.7 | 7.35 | 0.894 |
| 0.891 | 14.8 | 7.4 | 0.891 |
| 0.888 | 14.9 | 7.45 | 0.888 |
| 0.885 | 15 | 7.5 | 0.885 |
| 0.882 | 15.1 | 7.55 | 0.882 |
| 0.879 | 15.2 | 7.6 | 0.879 |
| 0.876 | 15.3 | 7.65 | 0.876 |
| 0.873 | 15.4 | 7.7 | 0.873 |
| 0.87 | 15.5 | 7.75 | 0.87 |
| 0.867 | 15.6 | 7.8 | 0.867 |
| 0.864 | 15.7 | 7.85 | 0.864 |
| 0.861 | 15.8 | 7.9 | 0.861 |
| 0.858 | 15.9 | 7.95 | 0.858 |
| 0.855 | 16 | 8 | 0.855 |
| 0.852 | 16.1 | 8.05 | 0.852 |
| 0.849 | 16.2 | 8.1 | 0.849 |
| 0.846 | 16.3 | 8.15 | 0.846 |
| 0.843 | 16.4 | 8.2 | 0.843 |
| 0.84 | 16.5 | 8.25 | 0.84 |
| 0.837 | 16.6 | 8.3 | 0.837 |
| 0.834 | 16.7 | 8.35 | 0.834 |
| 0.831 | 16.8 | 8.4 | 0.831 |
| 0.828 | 16.9 | 8.45 | 0.828 |

| | | | |
|---|---|---|---|
| 0.825 | 17 | 8.5 | 0.825 |
| 0.822 | 17.1 | 8.55 | 0.822 |
| 0.819 | 17.2 | 8.6 | 0.819 |
| 0.816 | 17.3 | 8.65 | 0.816 |
| 0.813 | 17.4 | 8.7 | 0.813 |
| 0.81 | 17.5 | 8.75 | 0.81 |
| 0.808 | 17.6 | 8.8 | 0.808 |
| 0.806 | 17.7 | 8.85 | 0.806 |
| 0.804 | 17.8 | 8.9 | 0.804 |
| 0.802 | 17.9 | 8.95 | 0.802 |
| 0.8 | 18 | 9 | 0.8 |
| 0.798 | 18.1 | 9.05 | 0.798 |
| 0.796 | 18.2 | 9.1 | 0.796 |
| 0.794 | 18.3 | 9.15 | 0.794 |
| 0.792 | 18.4 | 9.2 | 0.792 |
| 0.79 | 18.5 | 9.25 | 0.79 |
| 0.788 | 18.6 | 9.3 | 0.788 |
| 0.786 | 18.7 | 9.35 | 0.786 |
| 0.784 | 18.8 | 9.4 | 0.784 |
| 0.782 | 18.9 | 9.45 | 0.782 |
| 0.78 | 19 | 9.5 | 0.78 |
| 0.778 | 19.1 | 9.55 | 0.778 |
| 0.776 | 19.2 | 9.6 | 0.776 |
| 0.774 | 19.3 | 9.65 | 0.774 |
| 0.772 | 19.4 | 9.7 | 0.772 |
| 0.77 | 19.5 | 9.75 | 0.77 |
| 0.768 | 19.6 | 9.8 | 0.768 |
| 0.766 | 19.7 | 9.85 | 0.766 |
| 0.764 | 19.8 | 9.9 | 0.764 |
| 0.762 | 19.9 | 9.95 | 0.762 |
| 0.76 | 20 | 10 | 0.76 |
| 0.758 | 20.1 | 10.05 | 0.758 |
| 0.756 | 20.2 | 10.1 | 0.756 |
| 0.754 | 20.3 | 10.15 | 0.754 |
| 0.752 | 20.4 | 10.2 | 0.752 |
| 0.75 | 20.5 | 10.25 | 0.75 |
| 0.748 | 20.6 | 10.3 | 0.748 |
| 0.746 | 20.7 | 10.35 | 0.746 |
| 0.744 | 20.8 | 10.4 | 0.744 |
| 0.742 | 20.9 | 10.45 | 0.742 |
| 0.74 | 21 | 10.5 | 0.74 |
| 0.738 | 21.1 | 10.55 | 0.738 |
| 0.736 | 21.2 | 10.6 | 0.736 |
| 0.734 | 21.3 | 10.65 | 0.734 |
| 0.732 | 21.4 | 10.7 | 0.732 |
| 0.73 | 21.5 | 10.75 | 0.73 |
| 0.728 | 21.6 | 10.8 | 0.728 |
| 0.726 | 21.7 | 10.85 | 0.726 |
| 0.724 | 21.8 | 10.9 | 0.724 |
| 0.722 | 21.9 | 10.95 | 0.722 |
| 0.72 | 22 | 11 | 0.72 |
| 0.718 | 22.1 | 11.05 | 0.718 |
| 0.716 | 22.2 | 11.1 | 0.716 |
| 0.714 | 22.3 | 11.15 | 0.714 |
| 0.712 | 22.4 | 11.2 | 0.712 |
| 0.71 | 22.5 | 11.25 | 0.71 |
| 0.709 | 22.6 | 11.3 | 0.709 |
| 0.708 | 22.7 | 11.35 | 0.708 |
| 0.707 | 22.8 | 11.4 | 0.707 |
| 0.706 | 22.9 | 11.45 | 0.706 |
| 0.705 | 23 | 11.5 | 0.705 |
| 0.704 | 23.1 | 11.55 | 0.704 |
| 0.703 | 23.2 | 11.6 | 0.703 |
| 0.702 | 23.3 | 11.65 | 0.702 |
| 0.701 | 23.4 | 11.7 | 0.701 |
| 0.7 | 23.5 | 11.75 | 0.7 |
| 0.699 | 23.6 | 11.8 | 0.699 |
| 0.698 | 23.7 | 11.85 | 0.698 |
| 0.697 | 23.8 | 11.9 | 0.697 |
| 0.696 | 23.9 | 11.95 | 0.696 |
| 0.695 | 24 | 12 | 0.695 |
| 0.694 | 24.1 | 12.05 | 0.694 |
| 0.693 | 24.2 | 12.1 | 0.693 |
| 0.692 | 24.3 | 12.15 | 0.692 |
| 0.691 | 24.4 | 12.2 | 0.691 |
| 0.69 | 24.5 | 12.25 | 0.69 |
| 0.688 | 24.6 | 12.3 | 0.688 |
| 0.686 | 24.7 | 12.35 | 0.686 |
| 0.684 | 24.8 | 12.4 | 0.684 |
| 0.682 | 24.9 | 12.45 | 0.682 |
| 0.68 | 25 | 12.5 | 0.68 |
| 0.678 | 25.1 | 12.55 | 0.678 |
| 0.676 | 25.2 | 12.6 | 0.676 |
| 0.674 | 25.3 | 12.65 | 0.674 |
| 0.672 | 25.4 | 12.7 | 0.672 |
| 0.67 | 25.5 | 12.75 | 0.67 |
| 0.668 | 25.65 | 12.825 | 0.668 |
| 0.666 | 25.8 | 12.9 | 0.666 |
| 0.664 | 25.95 | 12.975 | 0.664 |
| 0.662 | 26.1 | 13.05 | 0.662 |
| 0.66 | 26.25 | 13.125 | 0.66 |
| 0.658 | 26.4 | 13.2 | 0.658 |
| 0.656 | 26.55 | 13.275 | 0.656 |
| 0.654 | 26.7 | 13.35 | 0.654 |
| 0.652 | 26.85 | 13.425 | 0.652 |
| 0.65 | 27 | 13.5 | 0.65 |
| 0.647 | 27.2 | 13.6 | 0.647 |
| 0.644 | 27.4 | 13.7 | 0.644 |
| 0.641 | 27.6 | 13.8 | 0.641 |
| 0.638 | 27.8 | 13.9 | 0.638 |
| 0.635 | 28 | 14 | 0.635 |
| 0.632 | 28.2 | 14.1 | 0.632 |
| 0.629 | 28.4 | 14.2 | 0.629 |
| 0.626 | 28.6 | 14.3 | 0.626 |
| 0.623 | 28.8 | 14.4 | 0.623 |
| 0.62 | 29 | 14.5 | 0.62 |
| 0.618 | 29.2 | 14.6 | 0.618 |
| 0.616 | 29.4 | 14.7 | 0.616 |
| 0.614 | 29.6 | 14.8 | 0.614 |
| 0.612 | 29.8 | 14.9 | 0.612 |
| 0.61 | 30 | 15 | 0.61 |
| 0.608 | 30.2 | 15.1 | 0.608 |
| 0.606 | 30.4 | 15.2 | 0.606 |
| 0.604 | 30.6 | 15.3 | 0.604 |
| 0.602 | 30.8 | 15.4 | 0.602 |
| 0.6 | 31 | 15.5 | 0.6 |
| 0.598 | 31.2 | 15.6 | 0.598 |
| 0.596 | 31.4 | 15.7 | 0.596 |
| 0.594 | 31.6 | 15.8 | 0.594 |
| 0.592 | 31.8 | 15.9 | 0.592 |
| 0.59 | 32 | 16 | 0.59 |
| 0.588 | 32.2 | 16.1 | 0.588 |
| 0.586 | 32.4 | 16.2 | 0.586 |
| 0.584 | 32.6 | 16.3 | 0.584 |
| 0.582 | 32.8 | 16.4 | 0.582 |
| 0.58 | 33 | 16.5 | 0.58 |
| 0.578 | 33.2 | 16.6 | 0.578 |
| 0.576 | 33.4 | 16.7 | 0.576 |
| 0.574 | 33.6 | 16.8 | 0.574 |
| 0.572 | 33.8 | 16.9 | 0.572 |
| 0.57 | 34 | 17 | 0.57 |
| 0.568 | 34.2 | 17.1 | 0.568 |
| 0.566 | 34.4 | 17.2 | 0.566 |
| 0.564 | 34.6 | 17.3 | 0.564 |
| 0.562 | 34.8 | 17.4 | 0.562 |
| 0.56 | 35 | 17.5 | 0.56 |
| 0.558 | 35.2 | 17.6 | 0.558 |
| 0.556 | 35.4 | 17.7 | 0.556 |
| 0.554 | 35.6 | 17.8 | 0.554 |
| 0.552 | 35.8 | 17.9 | 0.552 |
| 0.55 | 36 | 18 | 0.55 |
| 0.548 | 36.2 | 18.1 | 0.548 |
| 0.546 | 36.4 | 18.2 | 0.546 |
| 0.544 | 36.6 | 18.3 | 0.544 |
| 0.542 | 36.8 | 18.4 | 0.542 |
| 0.54 | 37 | 18.5 | 0.54 |
| 0.538 | 37.2 | 18.6 | 0.538 |
| 0.536 | 37.4 | 18.7 | 0.536 |
| 0.534 | 37.6 | 18.8 | 0.534 |
| 0.532 | 37.8 | 18.9 | 0.532 |
| 0.53 | 38 | 19 | 0.53 |
| 0.528 | 38.2 | 19.1 | 0.528 |
| 0.526 | 38.4 | 19.2 | 0.526 |
| 0.524 | 38.6 | 19.3 | 0.524 |
| 0.522 | 38.8 | 19.4 | 0.522 |
| 0.52 | 39 | 19.5 | 0.52 |
| 0.518 | 39.2 | 19.6 | 0.518 |
| 0.516 | 39.4 | 19.7 | 0.516 |
| 0.514 | 39.6 | 19.8 | 0.514 |
| 0.512 | 39.8 | 19.9 | 0.512 |
| 0.51 | 40 | 20 | 0.51 |
| 0.508 | 40.2 | 20.1 | 0.508 |
| 0.506 | 40.4 | 20.2 | 0.506 |
| 0.504 | 40.6 | 20.3 | 0.504 |
| 0.502 | 40.8 | 20.4 | 0.502 |
| 0.5 | 41 | 20.5 | 0.5 |
| 0.499 | 41.2 | 20.6 | 0.499 |

| | | | |
|---|---|---|---|
| 0.498 | 41.4 | 20.7 | 0.498 |
| 0.497 | 41.6 | 20.8 | 0.497 |
| 0.496 | 41.8 | 20.9 | 0.496 |
| 0.495 | 42 | 21 | 0.495 |
| 0.494 | 42.2 | 21.1 | 0.494 |
| 0.493 | 42.4 | 21.2 | 0.493 |
| 0.492 | 42.6 | 21.3 | 0.492 |
| 0.491 | 42.8 | 21.4 | 0.491 |
| 0.49 | 43 | 21.5 | 0.49 |
| 0.488 | 43.2 | 21.6 | 0.488 |
| 0.486 | 43.4 | 21.7 | 0.486 |
| 0.484 | 43.6 | 21.8 | 0.484 |
| 0.482 | 43.8 | 21.9 | 0.482 |
| 0.48 | 44 | 22 | 0.48 |
| 0.478 | 44.2 | 22.1 | 0.478 |
| 0.476 | 44.4 | 22.2 | 0.476 |
| 0.474 | 44.6 | 22.3 | 0.474 |
| 0.472 | 44.8 | 22.4 | 0.472 |
| 0.47 | 45 | 22.5 | 0.47 |
| 0.469 | 45.2 | 22.6 | 0.469 |
| 0.468 | 45.4 | 22.7 | 0.468 |
| 0.467 | 45.6 | 22.8 | 0.467 |
| 0.466 | 45.8 | 22.9 | 0.466 |
| 0.465 | 46 | 23 | 0.465 |
| 0.464 | 46.2 | 23.1 | 0.464 |
| 0.463 | 46.4 | 23.2 | 0.463 |
| 0.462 | 46.6 | 23.3 | 0.462 |
| 0.461 | 46.8 | 23.4 | 0.461 |
| 0.46 | 47 | 23.5 | 0.46 |
| 0.458 | 47.2 | 23.6 | 0.458 |
| 0.456 | 47.4 | 23.7 | 0.456 |
| 0.454 | 47.6 | 23.8 | 0.454 |
| 0.452 | 47.8 | 23.9 | 0.452 |
| 0.45 | 48 | 24 | 0.45 |
| 0.448 | 48.2 | 24.1 | 0.448 |
| 0.446 | 48.4 | 24.2 | 0.446 |
| 0.444 | 48.6 | 24.3 | 0.444 |
| 0.442 | 48.8 | 24.4 | 0.442 |
| 0.44 | 49 | 24.5 | 0.44 |