



How to use the WHO Growth Charts

Correct Chart

Find the appropriate chart for the child

Boys	Girls
0-2 yrs weight for age	0-2 yrs weight for age
0-2 yrs length for age	0-2 yrs length for age
2-5 yrs weight for age	2-5 yrs weight for age
2-5 yrs height for age	2-5 yrs height for age
5-10 yrs weight for age	5-10 yrs weight for age
5-19 yrs height for age	5-19 yrs height for age
5-19 yrs BMI for age	5-19 yrs BMI for age
0-5 yrs Head Circumference	0-5 yrs Head Circumference

Gender

- Pink charts for girls
- Blue charts for boys

Measurements

- Weight-for-age
- Length/Height-for-age
- Head circumference

Age

- Birth to 2 years
- 2 to 5 years
- Birth to 5 years (for head circumference)

Where the forms can be found

- Health Centre
- Remote Health
- Down loaded from Remote Health ATLAS- Growth Charts

Background

The reason for the introduction of the WHO Growth Charts into the Northern Territory

In 2006 the WHO released a new set of growth standards and charts, based on data from the Multicentre Growth Reference Study (MGRS). The WHO recommends the application of these standards for all children worldwide, regardless of ethnicity, socioeconomic status and type of feeding. A large number of countries have officially adopted the new standards and many others are in the process of doing so. The growth charts and background information are available at www.who.int/childgrowth/en/

Remote Indigenous children represent a significant proportion of the NT population. Data from Indigenous children in remote communities and some urban communities show high rates of growth faltering in the first few years of life. Growth monitoring programs with intervention for children failing to thrive are in operation. Monitoring and accurately identifying individual children who are not growing normally is important, as is having the best population data about rates of inadequate growth. The accurate and early identification of overweight is also important because of the prevalence of obesity, early onset of type 2 diabetes and other chronic diseases.

The most common and important reason to use a growth chart in the NT is for monitoring of a young child or infant's growth or as part of a health assessment. The WHO data set appears to have significant advantages. The fact that the data is derived from a world population of infants who are receiving optimal nutrition and exclusively breast fed for the first 4 months, and that the chart can be used as a growth standard makes the WHO data set the preferred choice for use in the NT.

When to plot

Weight

- Birth
- 2nd Weekly until 2 months
- Monthly until 2 years
- 6 monthly until 4 years
- Monthly if clinically indicated or a GAA action plan has been started

Length/Height

- Birth
- 2 months
- 6 months and
- 6 monthly until 4 years unless directed by MO

Head circumference

- Birth
- At 2 months
- And after that as directed by MO

Interpret trends on Growth Charts

- Refer to CARPA Standard Treatment Manual 4th Edition
- Page 106-107 and 111

Weight-for-age

Birth to 2 years and 2 to 5 years

To find the correct age

- Age is on the line which goes across the bottom of the page
(horizontal axis) it is marked in completed months and years

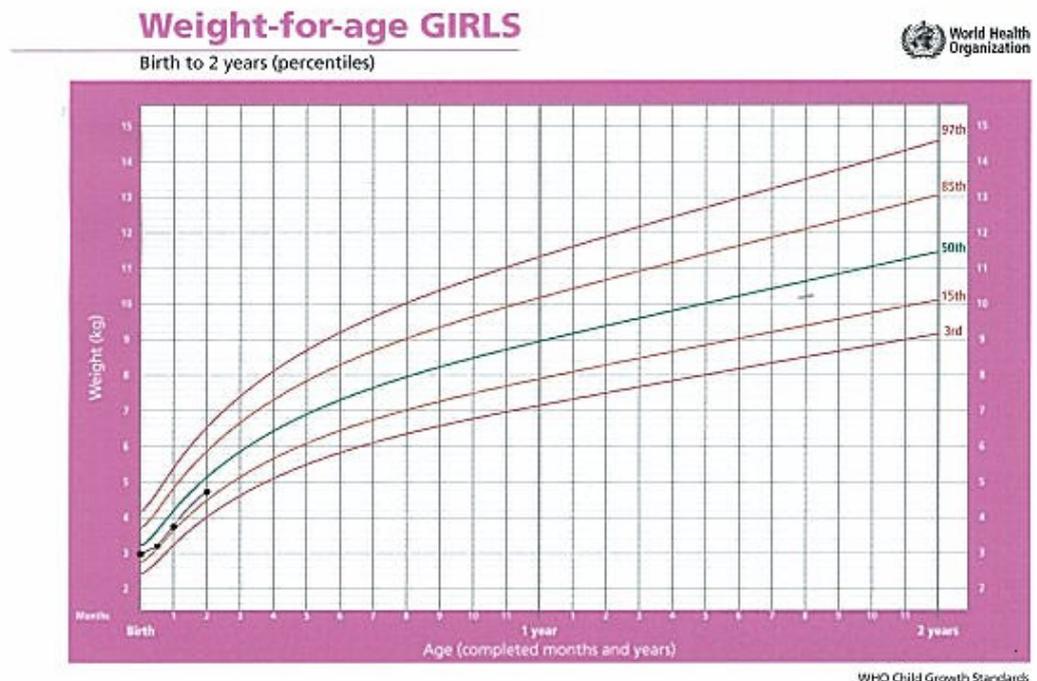
To find the correct weight

- Weight is on the line on the left hand side of the graph (vertical axis)
The bold line measures each kilogram and the 4 fainter lines between
measures 200gms.

To plot on the chart

- Use a ruler to find the point on the graph where the weight and age join.

EXAMPLE



Weight-for-age-GIRLS

Measurements

Birth	3 kg
2 weeks	3.20 kg
1 month (4 weeks)	3.80 kg
2 months (8 weeks)	4.75 kg

Length / Height-for-age

Length-for-age Birth to 2 years and

Height-for-age 2 to 5 years

To find the correct age

- Age is on the line which goes across the bottom of the page
(horizontal axis) it is marked in completed months and years

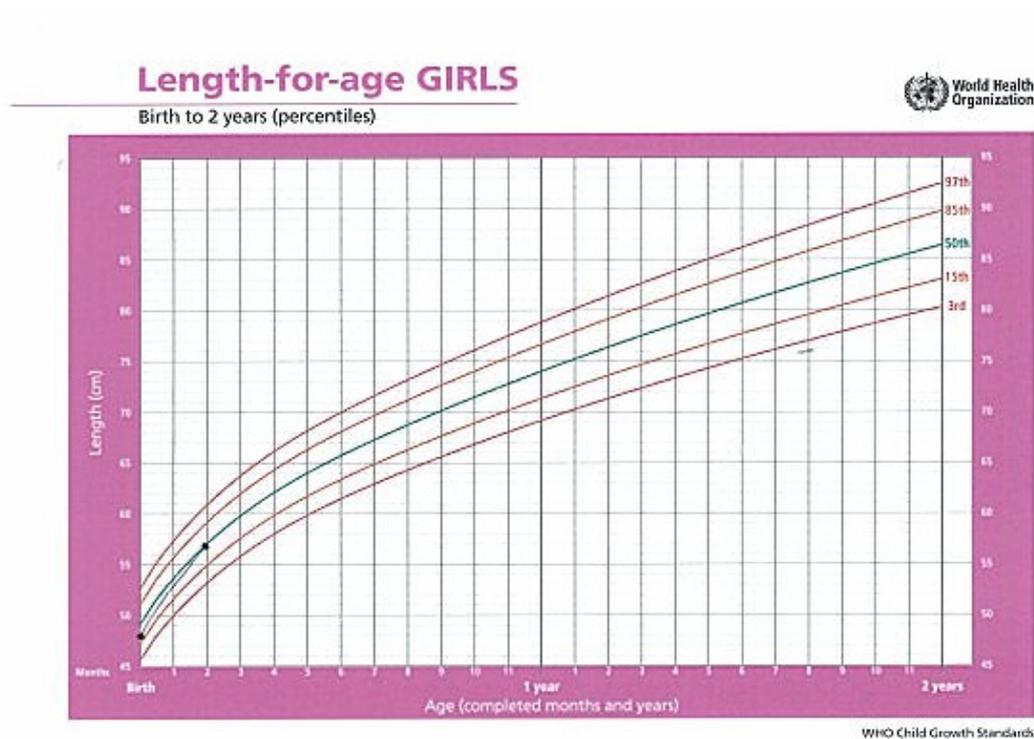
To find the correct length/height

- Length/Height is on the line on the left hand side of the graph (vertical axis)
The bold lines are in 5cm gradients and the 4 fainter lines between are at 1cm gradients

To plot on the chart

- Use a ruler to find the point on the graph where the length/height and age join.

EXAMPLE



Length-for-age-GIRLS

Measurements

Birth	48cms
2 months (8 weeks)	57cm

Head circumference-for-age

Birth to 5 years

To find the correct age

- Age is on the line which goes across the bottom of the page
(horizontal axis) it is marked in completed months and years

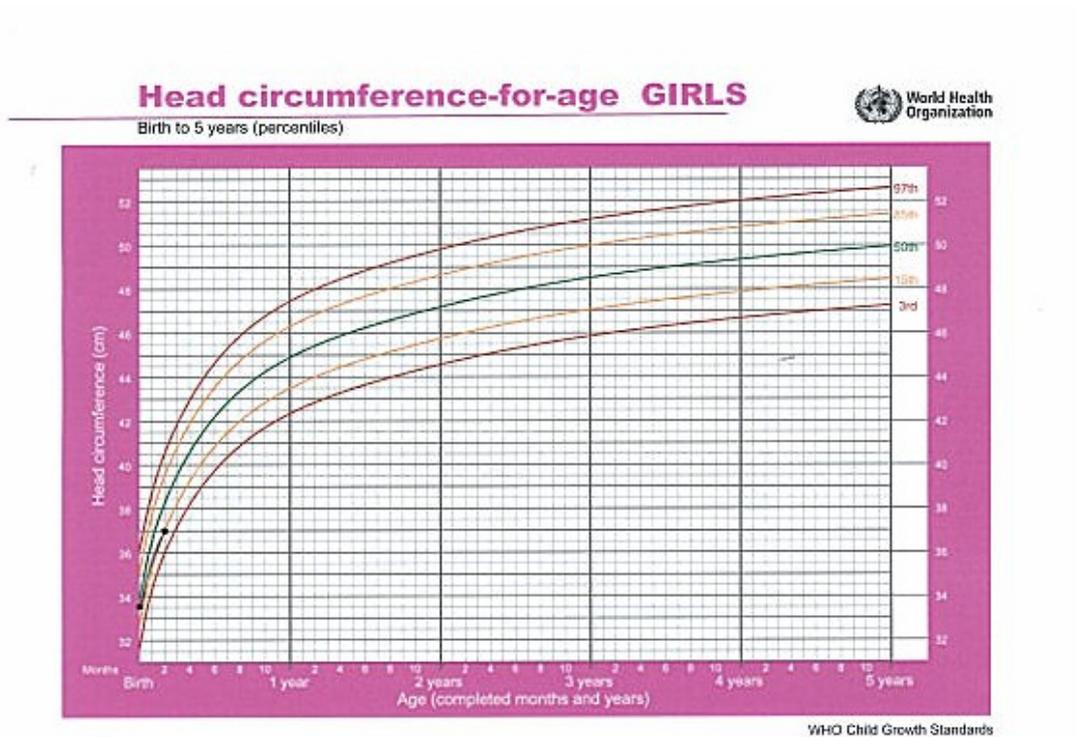
To find the correct head circumference

- Head circumference is on the line on the left hand side of the graph; this line goes from the bottom of the page to the top of the page (vertical axis)
- The bold line are in 1cm gradients and the 2 fainter lines between are at 0.5cm increments

To plot on the chart

- Use a ruler to find the point on the graph where the head circumference and age join.

EXAMPLE



Head circumference-for-age GIRLS

Birth	33.5cm
2 months (8 weeks)	37cms

B.M.I. - Body Mass index

Birth - 5 years

BMI changes with the child's age

After the age of 5 years BMI - for age can be plotted on the

BMI – for age (5-19 years) growth chart

The B.M.I. is a useful tool for screening for overweight and obesity.

The HU5K program currently requires a B.M.I. to be recorded at 4 years of age.

These can be calculated by either

- A. Mathematical formula (kg/m²)
- B. The BMI table

Determine BMI (body mass index)

- A. The mathematical formula (kg/m²)

That is

$$\text{BMI} = \frac{\text{Wt (kg)}}{\text{Ht (m)} \times \text{Ht (m)}}$$

Example:

Weight: 16kg. Height 98cm

$$\text{BMI} = \frac{\text{Wt (kg)}}{\text{Ht (m)} \times \text{Ht (m)}}$$

$$\text{BMI} = \frac{16}{\text{Ht (0.98)} \times \text{Ht (0.98)}}$$

$$\text{BMI} = \frac{16}{(0.9604)}$$

$$\text{BMI} = \mathbf{16.659}$$

B.M.I. - Body Mass index

BMI changes with the child's age

Birth - 5 years

B. the BMI table

- Find the child's length or height (in centimetres) in the far left column of the table. If the exact measurement is not shown, select the closest one. If the child's measurement is halfway between those shown, select the next higher measurement.
- Look across the row to find the child's weight. If the exact weight is not shown, select the closest one. If the weight is halfway between those shown, consider it "on the line".
- Trace your finger upwards from the weight to find the child's BMI on the top row of the table. If the weight was "on the line" the BMI will be halfway between those shown, e.g. 15.5 if between 15 and 16.

Example:

Weight: 16kg. Height 98cm

- Find the child's length or height (in centimetres) in the far left column of the table. If the exact measurement is not shown, select the closest one. If the child's measurement is halfway between those shown, select the next higher measurement.
16kg
- Look across the row to find the child's weight. If the exact weight is not shown, select the closest one. If the weight is halfway between those shown, consider it "on the line".
16.3
- Trace your finger upwards from the weight to find the child's BMI on the top row of the table. If the weight was "on the line" the BMI will be halfway between those shown, e.g. 15.5 if between 15 and 16.

L or H (cm)	Body Mass Index (BMI)																										L or H (cm)
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26								
84	5.6	6.4	7.1	7.8	8.5	9.2	9.9	10.6	11.3	12.0	12.7	13.4	14.1	14.8	15.5	16.2	16.9	17.6	18.3	84							
85	5.8	6.5	7.2	7.9	8.7	9.4	10.1	10.8	11.6	12.3	13.0	13.7	14.5	15.2	15.9	16.6	17.3	18.1	18.8	85							
86	5.9	6.7	7.4	8.1	8.9	9.6	10.4	11.1	11.8	12.6	13.3	14.1	14.8	15.5	16.3	17.0	17.8	18.5	19.2	86							
87	6.1	6.8	7.6	8.3	9.1	9.8	10.6	11.4	12.1	12.9	13.6	14.4	15.1	15.9	16.7	17.4	18.2	18.9	19.7	87							
88	6.2	7.0	7.7	8.5	9.3	10.1	10.8	11.6	12.4	13.2	13.9	14.7	15.5	16.3	17.0	17.8	18.6	19.4	20.1	88							
89	6.3	7.1	7.9	8.7	9.5	10.3	11.1	11.9	12.7	13.5	14.3	15.0	15.8	16.6	17.4	18.2	19.0	19.8	20.6	89							
90	6.5	7.3	8.1	8.9	9.7	10.5	11.3	12.2	13.0	13.8	14.6	15.4	16.2	17.0	17.8	18.6	19.4	20.3	21.1	90							
91	6.6	7.5	8.3	9.1	9.9	10.8	11.6	12.4	13.2	14.1	14.9	15.7	16.6	17.4	18.2	19.0	19.9	20.7	21.5	91							
92	6.8	7.6	8.5	9.3	10.2	11.0	11.8	12.7	13.5	14.4	15.2	16.1	16.9	17.8	18.6	19.5	20.3	21.2	22.0	92							
93	6.9	7.8	8.6	9.5	10.4	11.2	12.1	13.0	13.8	14.7	15.6	16.4	17.3	18.2	19.0	19.9	20.8	21.6	22.5	93							
94	7.1	8.0	8.8	9.7	10.6	11.5	12.4	13.3	14.1	15.0	15.9	16.8	17.7	18.6	19.4	20.3	21.2	22.1	23.0	94							
95	7.2	8.1	9.0	9.9	10.8	11.7	12.6	13.5	14.4	15.3	16.2	17.1	18.1	19.0	19.9	20.8	21.7	22.6	23.5	95							
96	7.4	8.3	9.2	10.1	11.1	12.0	12.9	13.8	14.7	15.7	16.6	17.5	18.4	19.4	20.3	21.2	22.1	23.0	24.0	96							
97	7.5	8.5	9.4	10.3	11.3	12.2	13.2	14.1	15.1	16.0	16.9	17.9	18.8	19.8	20.7	21.6	22.6	23.5	24.5	97							
98	7.7	8.6	9.6	10.6	11.5	12.5	13.4	14.4	15.4	16.3	17.3	18.2	19.2	20.2	21.1	22.1	23.0	24.0	25.0	98							
99	7.8	8.8	9.8	10.8	11.8	12.7	13.7	14.7	15.7	16.7	17.6	18.6	19.6	20.6	21.6	22.5	23.5	24.5	25.5	99							
100	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	100							
101	8.2	9.2	10.2	11.2	12.2	13.3	14.3	15.3	16.3	17.3	18.4	19.4	20.4	21.4	22.4	23.5	24.5	25.5	26.5	101							
102	8.3	9.4	10.4	11.4	12.5	13.5	14.6	15.6	16.6	17.7	18.7	19.8	20.8	21.8	22.9	23.9	25.0	26.0	27.1	102							
103	8.5	9.5	10.6	11.7	12.7	13.8	14.9	15.9	17.0	18.0	19.1	20.2	21.2	22.3	23.3	24.4	25.5	26.5	27.6	103							
104	8.7	9.7	10.8	11.9	13.0	14.1	15.1	16.2	17.3	18.4	19.5	20.6	21.6	22.7	23.8	24.9	26.0	27.0	28.1	104							
105	8.8	9.9	11.0	12.1	13.2	14.3	15.4	16.5	17.6	18.7	19.8	20.9	22.1	23.2	24.3	25.4	26.5	27.6	28.7	105							
106	9.0	10.1	11.2	12.4	13.5	14.6	15.7	16.9	18.0	19.1	20.2	21.3	22.5	23.6	24.7	25.8	27.0	28.1	29.2	106							
107	9.2	10.3	11.4	12.6	13.7	14.9	16.0	17.2	18.3	19.5	20.6	21.8	22.9	24.0	25.2	26.3	27.5	28.6	29.8	107							
108	9.3	10.5	11.7	12.8	14.0	15.2	16.3	17.5	18.7	19.8	21.0	22.2	23.3	24.5	25.7	26.8	28.0	29.2	30.3	108							
109	9.5	10.7	11.9	13.1	14.3	15.4	16.6	17.8	19.0	20.2	21.4	22.6	23.8	25.0	26.1	27.3	28.5	29.7	30.9	109							
110	9.7	10.9	12.1	13.3	14.5	15.7	16.9	18.2	19.4	20.6	21.8	23.0	24.2	25.4	26.6	27.8	29.0	30.3	31.5	110							
111	9.9	11.1	12.3	13.6	14.8	16.0	17.2	18.5	19.7	20.9	22.2	23.4	24.6	25.9	27.1	28.3	29.6	30.8	32.0	111							
112	10.0	11.3	12.5	13.8	15.1	16.3	17.6	18.8	20.1	21.3	22.6	23.8	25.1	26.3	27.6	28.9	30.1	31.4	32.6	112							
113	10.2	11.5	12.8	14.0	15.3	16.6	17.9	19.2	20.4	21.7	23.0	24.3	25.5	26.8	28.1	29.4	30.6	31.9	33.2	113							
114	10.4	11.7	13.0	14.3	15.6	16.9	18.2	19.5	20.8	22.1	23.4	24.7	26.0	27.3	28.6	29.9	31.2	32.5	33.8	114							
115	10.6	11.9	13.2	14.5	15.9	17.2	18.5	19.8	21.2	22.5	23.8	25.1	26.5	27.8	29.1	30.4	31.7	33.1	34.4	115							
116	10.8	12.1	13.5	14.8	16.1	17.5	18.8	20.2	21.5	22.9	24.2	25.6	26.9	28.3	29.6	30.9	32.3	33.6	35.0	116							
117	11.0	12.3	13.7	15.1	16.4	17.8	19.2	20.5	21.9	23.3	24.6	26.0	27.4	28.7	30.1	31.5	32.9	34.2	35.6	117							
118	11.1	12.5	13.9	15.3	16.7	18.1	19.5	20.9	22.3	23.7	25.1	26.5	27.8	29.2	30.6	32.0	33.4	34.8	36.2	118							
119	11.3	12.7	14.2	15.6	17.0	18.4	19.8	21.2	22.7	24.1	25.5	26.9	28.3	29.7	31.2	32.6	34.0	35.4	36.8	119							
120	11.5	13.0	14.4	15.8	17.3	18.7	20.2	21.6	23.0	24.5	25.9	27.4	28.8	30.2	31.7	33.1	34.6	36.0	37.4	120							
121	11.7	13.2	14.6	16.1	17.6	19.0	20.5	22.0	23.4	24.9	26.4	27.8	29.3	30.7	32.2	33.7	35.1	36.6	38.1	121							
122	11.9	13.4	14.9	16.4	17.9	19.3	20.8	22.3	23.8	25.3	26.8	28.3	29.8	31.3	32.7	34.2	35.7	37.2	38.7	122							
123	12.1	13.6	15.1	16.6	18.2	19.7	21.2	22.7	24.2	25.7	27.2	28.7	30.3	31.8	33.3	34.8	36.3	37.8	39.3	123							
124	12.3	13.8	15.4	16.9	18.5	20.0	21.5	23.1	24.6	26.1	27.7	29.2	30.8	32.3	33.8	35.4	36.9	38.4	40.0	124							
125	12.5	14.1	15.6	17.2	18.8	20.3	21.9	23.4	25.0	26.6	28.1	29.7	31.3	32.8	34.4	35.9	37.5	39.1	40.6	125							
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26								

L or H (cm)	Body Mass Index (BMI)																			L or H (cm)
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
42	1.4	1.6	1.8	1.9	2.1	2.3	2.5	2.6	2.8	3.0	3.2	3.4	3.5	3.7	3.9	4.1	4.2	4.4	4.6	42
43	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.4	4.6	4.8	43
44	1.5	1.7	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.6	4.8	5.0	44
45	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	4.9	5.1	5.3	45
46	1.7	1.9	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.3	5.5	46
47	1.8	2.0	2.2	2.4	2.7	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.6	4.9	5.1	5.3	5.5	5.7	47
48	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.5	3.7	3.9	4.1	4.4	4.6	4.8	5.1	5.3	5.5	5.8	6.0	48
49	1.9	2.2	2.4	2.6	2.9	3.1	3.4	3.6	3.8	4.1	4.3	4.6	4.8	5.0	5.3	5.5	5.8	6.0	6.2	49
50	2.0	2.3	2.5	2.8	3.0	3.3	3.5	3.8	4.0	4.3	4.5	4.8	5.0	5.3	5.5	5.8	6.0	6.3	6.5	50
51	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2	5.5	5.7	6.0	6.2	6.5	6.8	51
52	2.2	2.4	2.7	3.0	3.2	3.5	3.8	4.1	4.3	4.6	4.9	5.1	5.4	5.7	5.9	6.2	6.5	6.8	7.0	52
53	2.2	2.5	2.8	3.1	3.4	3.7	3.9	4.2	4.5	4.8	5.1	5.3	5.6	5.9	6.2	6.5	6.7	7.0	7.3	53
54	2.3	2.6	2.9	3.2	3.5	3.8	4.1	4.4	4.7	5.0	5.2	5.5	5.8	6.1	6.4	6.7	7.0	7.3	7.6	54
55	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.1	6.4	6.7	7.0	7.3	7.6	7.9	55
56	2.5	2.8	3.1	3.4	3.8	4.1	4.4	4.7	5.0	5.3	5.6	6.0	6.3	6.6	6.9	7.2	7.5	7.8	8.2	56
57	2.6	2.9	3.2	3.6	3.9	4.2	4.5	4.9	5.2	5.5	5.8	6.2	6.5	6.8	7.1	7.5	7.8	8.1	8.4	57
58	2.7	3.0	3.4	3.7	4.0	4.4	4.7	5.0	5.4	5.7	6.1	6.4	6.7	7.1	7.4	7.7	8.1	8.4	8.7	58
59	2.8	3.1	3.5	3.8	4.2	4.5	4.9	5.2	5.6	5.9	6.3	6.6	7.0	7.3	7.7	8.0	8.4	8.7	9.1	59
60	2.9	3.2	3.6	4.0	4.3	4.7	5.0	5.4	5.8	6.1	6.5	6.8	7.2	7.6	7.9	8.3	8.6	9.0	9.4	60
61	3.0	3.3	3.7	4.1	4.5	4.8	5.2	5.6	6.0	6.3	6.7	7.1	7.4	7.8	8.2	8.6	8.9	9.3	9.7	61
62	3.1	3.5	3.8	4.2	4.6	5.0	5.4	5.8	6.2	6.5	6.9	7.3	7.7	8.1	8.5	8.8	9.2	9.6	10.0	62
63	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4	6.7	7.1	7.5	7.9	8.3	8.7	9.1	9.5	9.9	10.3	63
64	3.3	3.7	4.1	4.5	4.9	5.3	5.7	6.1	6.6	7.0	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.2	10.6	64
65	3.4	3.8	4.2	4.6	5.1	5.5	5.9	6.3	6.8	7.2	7.6	8.0	8.5	8.9	9.3	9.7	10.1	10.6	11.0	65
66	3.5	3.9	4.4	4.8	5.2	5.7	6.1	6.5	7.0	7.4	7.8	8.3	8.7	9.1	9.6	10.0	10.5	10.9	11.3	66
67	3.6	4.0	4.5	4.9	5.4	5.8	6.3	6.7	7.2	7.6	8.1	8.5	9.0	9.4	9.9	10.3	10.8	11.2	11.7	67
68	3.7	4.2	4.6	5.1	5.5	6.0	6.5	6.9	7.4	7.9	8.3	8.8	9.2	9.7	10.2	10.6	11.1	11.6	12.0	68
69	3.8	4.3	4.8	5.2	5.7	6.2	6.7	7.1	7.6	8.1	8.6	9.0	9.5	10.0	10.5	11.0	11.4	11.9	12.4	69
70	3.9	4.4	4.9	5.4	5.9	6.4	6.9	7.4	7.8	8.3	8.8	9.3	9.8	10.3	10.8	11.3	11.8	12.3	12.7	70
71	4.0	4.5	5.0	5.5	6.0	6.6	7.1	7.6	8.1	8.6	9.1	9.6	10.1	10.6	11.1	11.6	12.1	12.6	13.1	71
72	4.1	4.7	5.2	5.7	6.2	6.7	7.3	7.8	8.3	8.8	9.3	9.8	10.4	10.9	11.4	11.9	12.4	13.0	13.5	72
73	4.3	4.8	5.3	5.9	6.4	6.9	7.5	8.0	8.5	9.1	9.6	10.1	10.7	11.2	11.7	12.3	12.8	13.3	13.9	73
74	4.4	4.9	5.5	6.0	6.6	7.1	7.7	8.2	8.8	9.3	9.9	10.4	11.0	11.5	12.0	12.6	13.1	13.7	14.2	74
75	4.5	5.1	5.6	6.2	6.8	7.3	7.9	8.4	9.0	9.6	10.1	10.7	11.3	11.8	12.4	12.9	13.5	14.1	14.6	75
76	4.6	5.2	5.8	6.4	6.9	7.5	8.1	8.7	9.2	9.8	10.4	11.0	11.6	12.1	12.7	13.3	13.9	14.4	15.0	76
77	4.7	5.3	5.9	6.5	7.1	7.7	8.3	8.9	9.5	10.1	10.7	11.3	11.9	12.5	13.0	13.6	14.2	14.8	15.4	77
78	4.9	5.5	6.1	6.7	7.3	7.9	8.5	9.1	9.7	10.3	11.0	11.6	12.2	12.8	13.4	14.0	14.6	15.2	15.8	78
79	5.0	5.6	6.2	6.9	7.5	8.1	8.7	9.4	10.0	10.6	11.2	11.9	12.5	13.1	13.7	14.4	15.0	15.6	16.2	79
80	5.1	5.8	6.4	7.0	7.7	8.3	9.0	9.6	10.2	10.9	11.5	12.2	12.8	13.4	14.1	14.7	15.4	16.0	16.6	80
81	5.2	5.9	6.6	7.2	7.9	8.5	9.2	9.8	10.5	11.2	11.8	12.5	13.1	13.8	14.4	15.1	15.7	16.4	17.1	81
82	5.4	6.1	6.7	7.4	8.1	8.7	9.4	10.1	10.8	11.4	12.1	12.8	13.4	14.1	14.8	15.5	16.1	16.8	17.5	82
83	5.5	6.2	6.9	7.6	8.3	9.0	9.6	10.3	11.0	11.7	12.4	13.1	13.8	14.5	15.2	15.8	16.5	17.2	17.9	83
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	