

**Formulas for Calculating Height (in cm)  
(if you know race/ethnicity and gender)**

	Race/ Ethnic Origin	Male Equation	Female Equation
Femur	European	$2.32 \times \text{Femur} + 65.53 \text{ cm} \pm 3.94 \text{ cm}$	$2.47 \times \text{Femur} + 54.10 \text{ cm} \pm 3.72 \text{ cm}$
	African-American	$2.10 \times \text{Femur} + 72.22 \text{ cm} \pm 3.91 \text{ cm}$	$2.28 \times \text{Femur} + 59.76 \text{ cm} \pm 3.41 \text{ cm}$
	Asian	$2.15 \times \text{Femur} + 72.57 \text{ cm} \pm 3.80 \text{ cm}$	$2.15 \times \text{Femur} + 72.57 \text{ cm} \pm 3.80 \text{ cm}$
Tibia	European	$2.42 \times \text{Tibia} + 81.93 \text{ cm} \pm 4.00 \text{ cm}$	$2.90 \times \text{Tibia} + 61.53 \text{ cm} \pm 3.66 \text{ cm}$
	African-American	$2.19 \times \text{Tibia} + 85.36 \text{ cm} \pm 3.96 \text{ cm}$	$2.45 \times \text{Tibia} + 72.56 \text{ cm} \pm 3.70 \text{ cm}$
	Asian	$2.39 \times \text{Tibia} + 81.45 \text{ cm} \pm 3.24 \text{ cm}$	$2.39 \times \text{Tibia} + 81.45 \text{ cm} \pm 3.24 \text{ cm}$
Fibula	European	$2.60 \times \text{Fibula} + 75.50 \text{ cm} \pm 3.86 \text{ cm}$	$2.93 \times \text{Fibula} + 59.61 \text{ cm} \pm 3.57 \text{ cm}$
	African-American	$2.34 \times \text{Fibula} + 80.07 \text{ cm} \pm 4.02 \text{ cm}$	$2.49 \times \text{Fibula} + 70.90 \text{ cm} \pm 3.80 \text{ cm}$
	Asian	$2.40 \times \text{Fibula} + 80.56 \text{ cm}$	Unknown
Ulna	European	$3.76 \times \text{Ulna} + 75.55 \text{ cm} \pm 4.72 \text{ cm}$	$4.27 \times \text{Ulna} + 57.76 \text{ cm} \pm 4.30 \text{ cm}$
	African-American	$3.20 \times \text{Ulna} + 82.77 \text{ cm} \pm 4.74 \text{ cm}$	$3.31 \times \text{Ulna} + 75.38 \text{ cm} \pm 4.83 \text{ cm}$
	Asian	$3.48 \times \text{Ulna} + 77.45 \text{ cm} \pm 4.66 \text{ cm}$	$3.48 \times \text{Ulna} + 77.45 \text{ cm} \pm 4.66 \text{ cm}$
Radius	European	$3.79 \times \text{Radius} + 79.42 \text{ cm} \pm 4.66 \text{ cm}$	$4.74 \times \text{Radius} + 54.93 \text{ cm} \pm 4.24 \text{ cm}$
	African-American	$3.32 \times \text{Radius} + 85.43 \text{ cm} \pm 4.57 \text{ cm}$	$3.67 \times \text{Radius} + 71.79 \text{ cm} \pm 4.59 \text{ cm}$
	Asian	$3.54 \times \text{Radius} + 82.00 \text{ cm}$	Unknown
Humerus	European	$2.89 \times \text{Humerus} + 78.10 \text{ cm} \pm 4.57 \text{ cm}$	$3.36 \times \text{Humerus} + 57.97 \text{ cm} \pm 4.45 \text{ cm}$
	African-American	$2.88 \times \text{Humerus} + 75.48 \text{ cm} \pm 4.23 \text{ cm}$	$3.08 \times \text{Humerus} + 64.67 \text{ cm} \pm 4.25 \text{ cm}$
	Asian	$2.68 \times \text{Humerus} + 89.19 \text{ cm} \pm 4.16 \text{ cm}$	$2.68 \times \text{Humerus} + 83.19 \text{ cm} \pm 4.16 \text{ cm}$

To solve the equation for height → **Value A x measured bone length + Value B = Basic Height (cm)**

The **±** value at the end would be **added** to the basic height to provide the upper range of height.  
The **±** value at the end would also be **subtracted** from the basic height to provide the lower range of height.