Probability Density Function (pdf)

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Discrete vs *Continuous* data

Probability Density Function (pdf)

Discrete distribution

- A statistical distribution used for *Discrete* data

Continuous distribution

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Normal Distribution
(the Bell curve)

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Normal Distribution
(the Bell curve) … *a continuous distribution*

Probability Density Function (pdf)

What is it?

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It is a rule that assigns probabilities to various possible values that a random variable takes when it is being approximated by a particular statistical distribution.

Probability Density Function (pdf)

is called the

Probability Mass Function (pmf)

… in the context of discrete data

Probability *Mass* Function (pmf)

Consider a Coin toss …

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Outcome of toss	Probability
Heads	0.5
Tails	0.5

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Probability *Mass* Function (pmf)

Roll of a Dice …

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Outcome of roll	Probability
1	1/6
2	1/6
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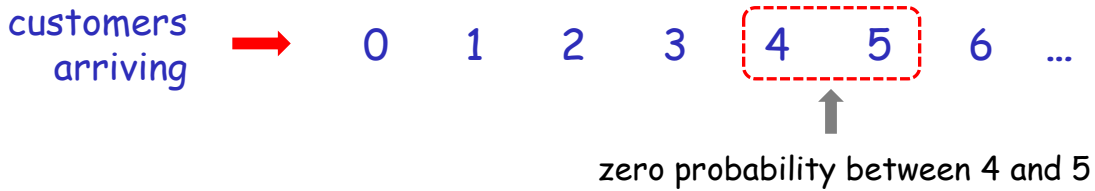

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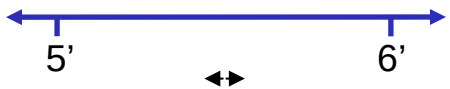

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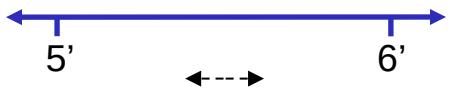

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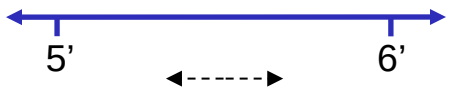

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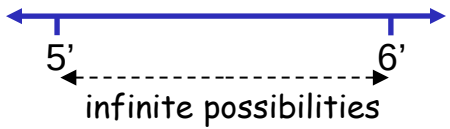

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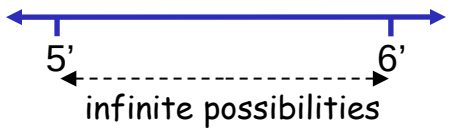

Probability(height = 5' 2") = ?

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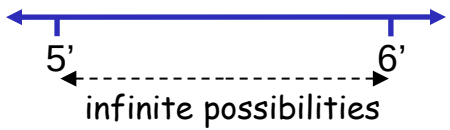

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- What is the probability that someone's height is ***between 5' 2" and 5' 5"*** ?

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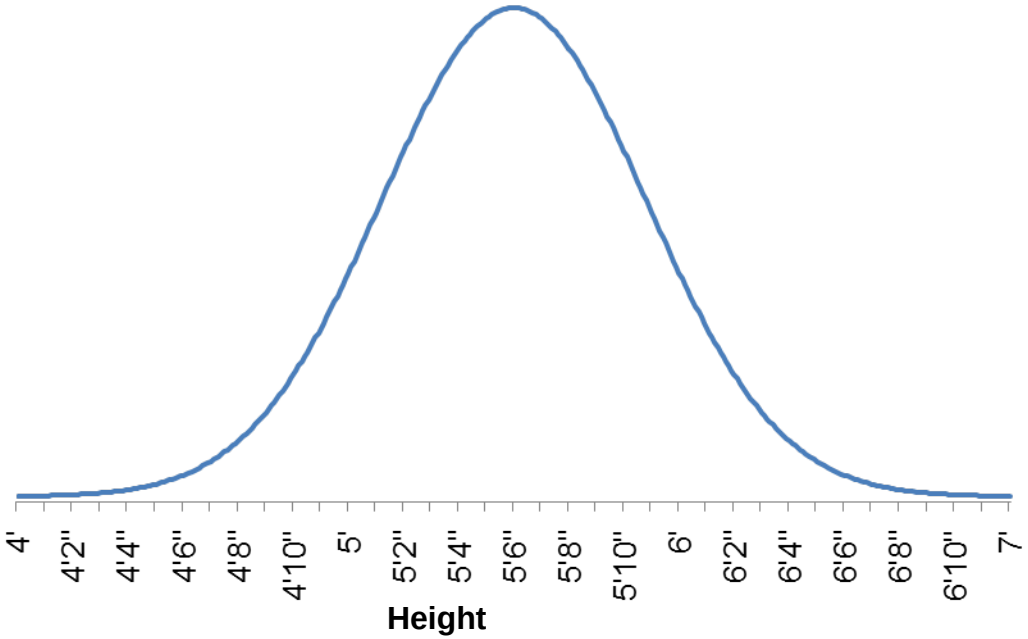
Heights of Men and Women



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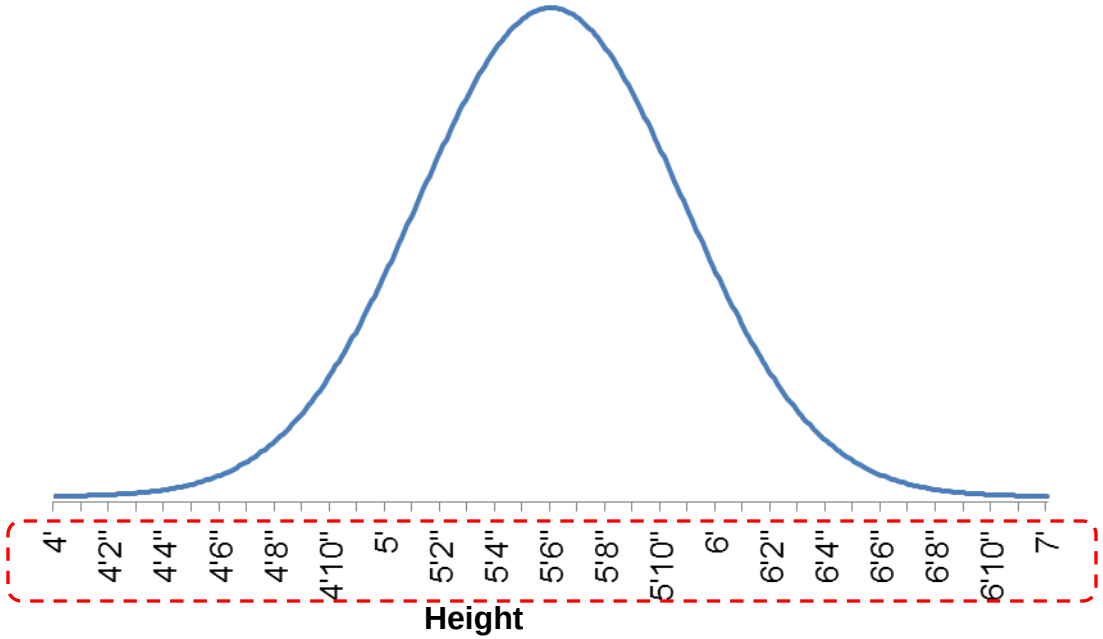

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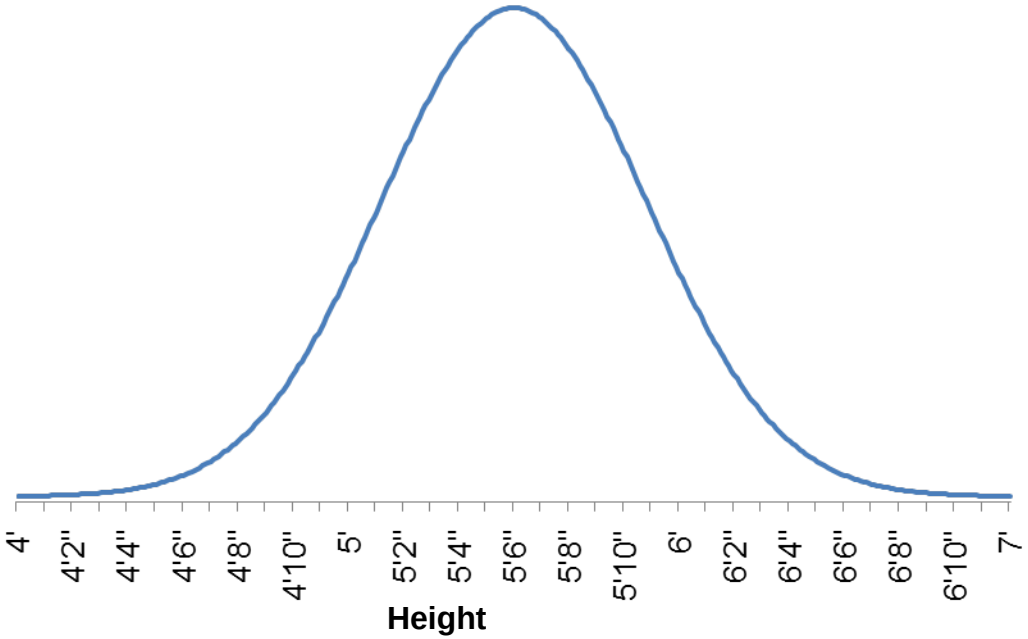

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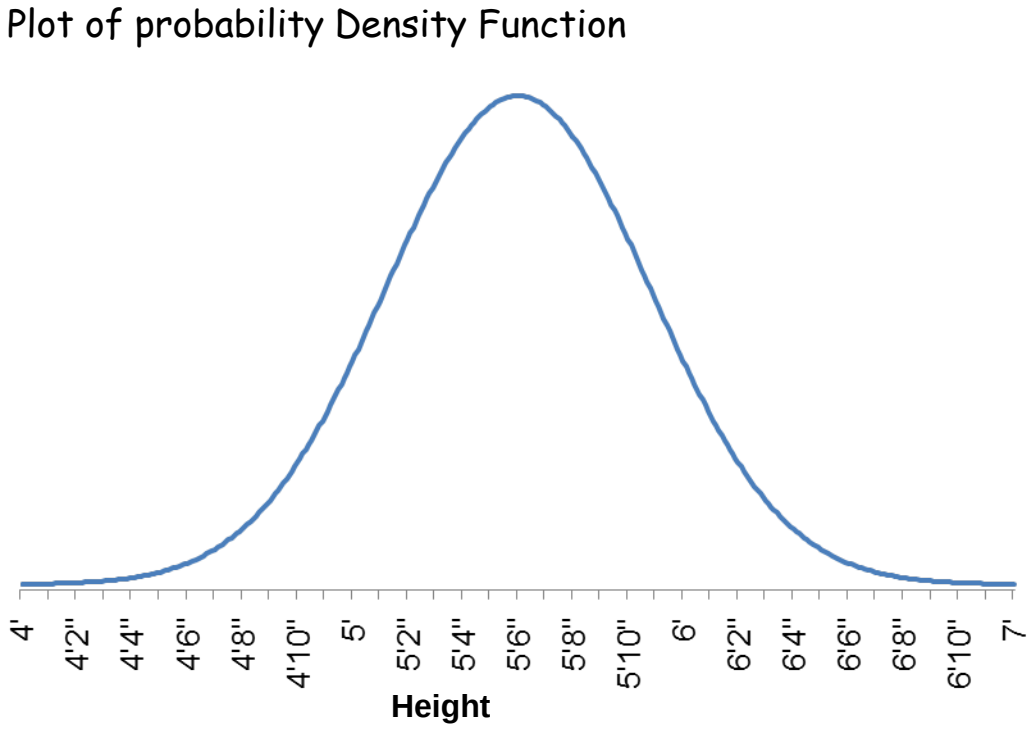

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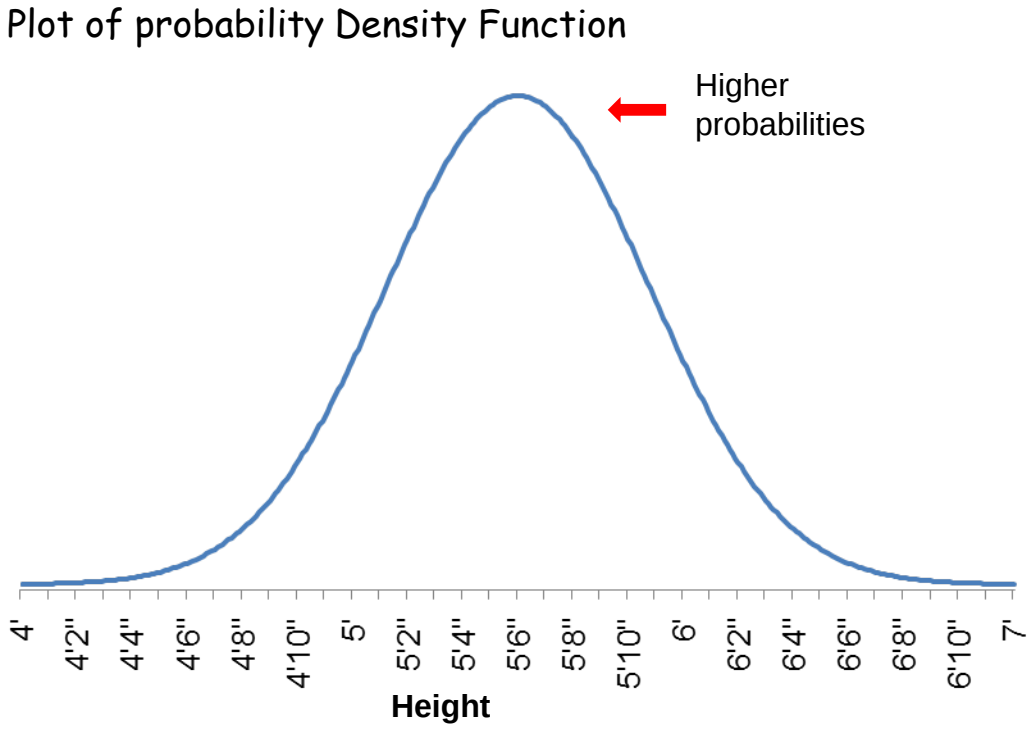

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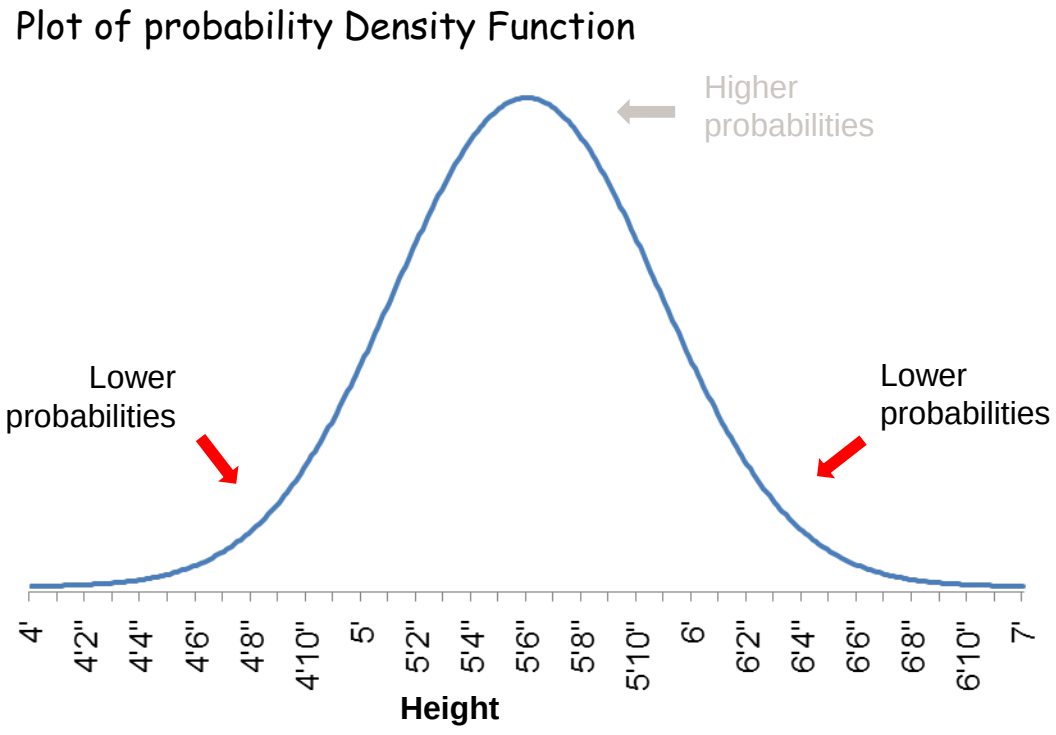
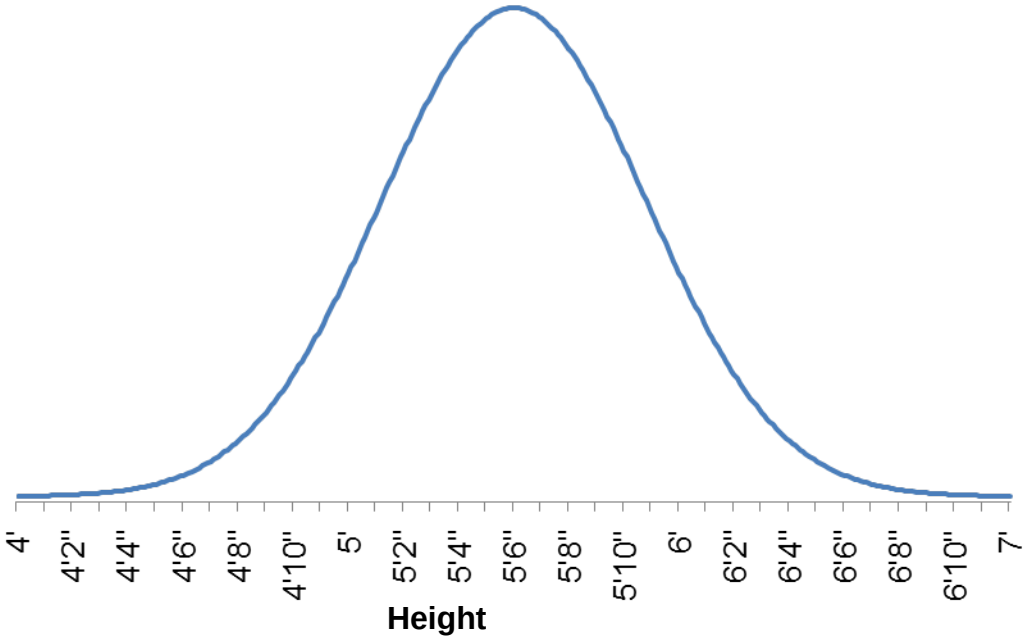


Heights of Men and Women

Prob(Height < 5′) = ?



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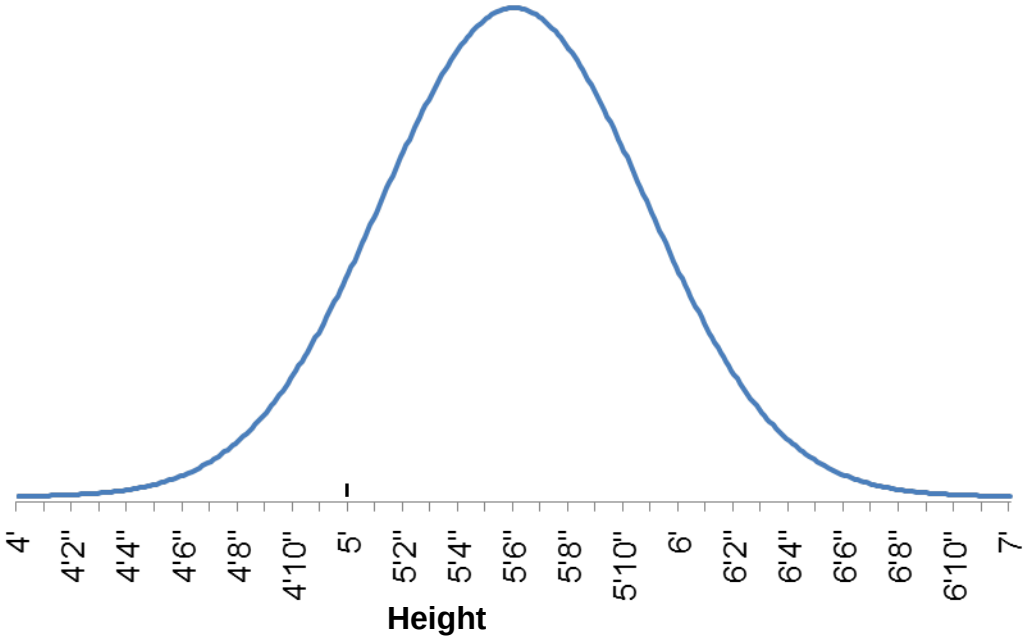

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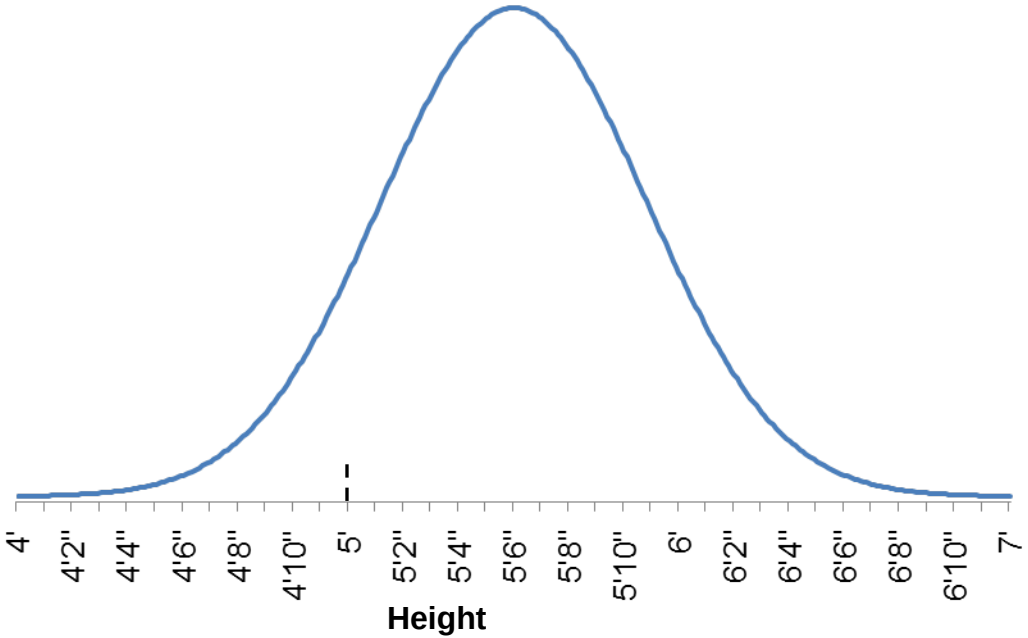

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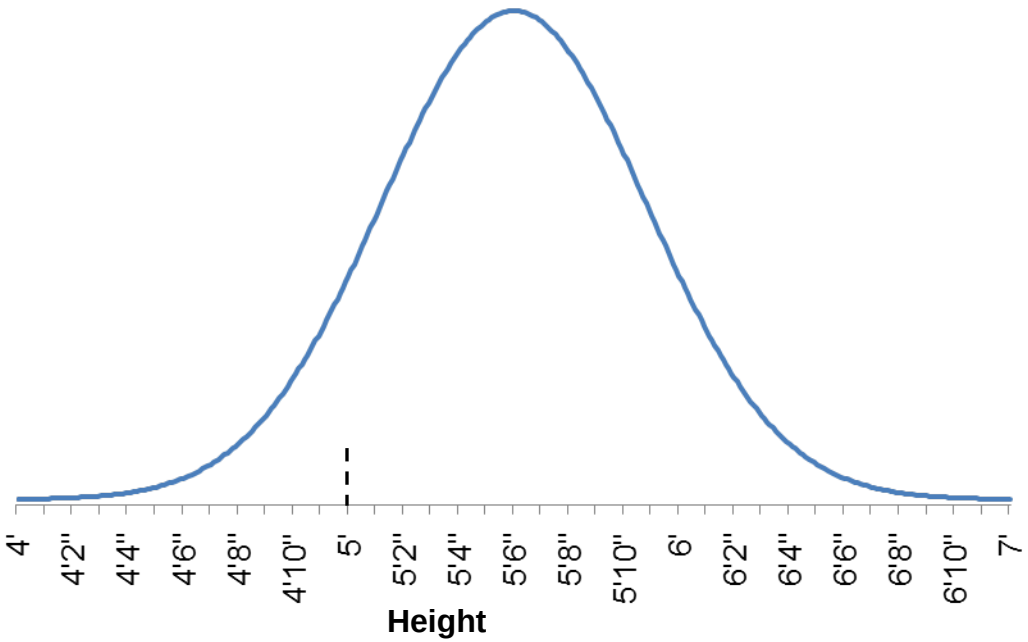

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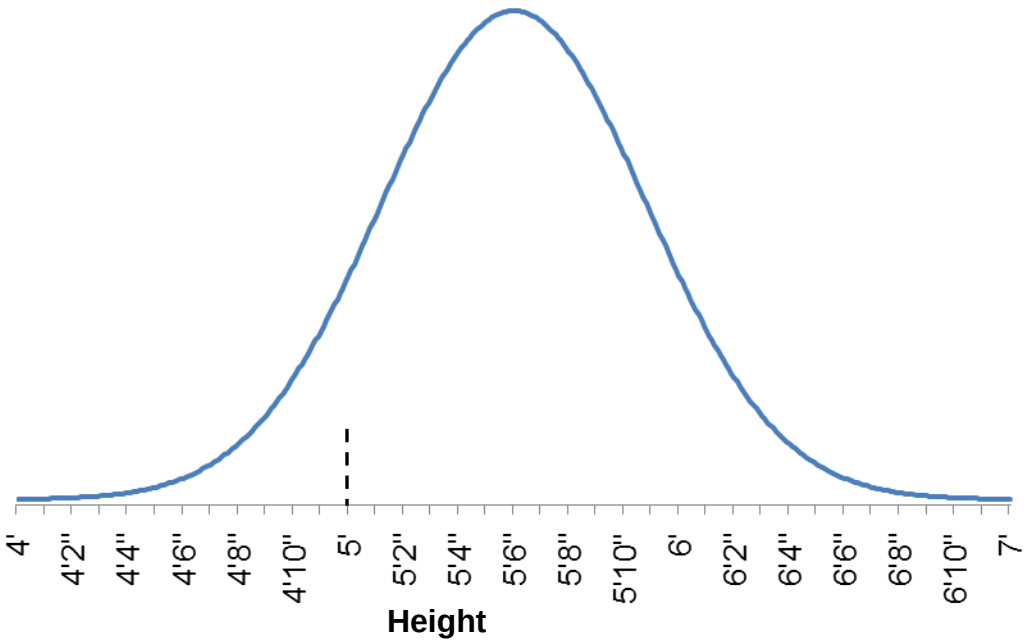

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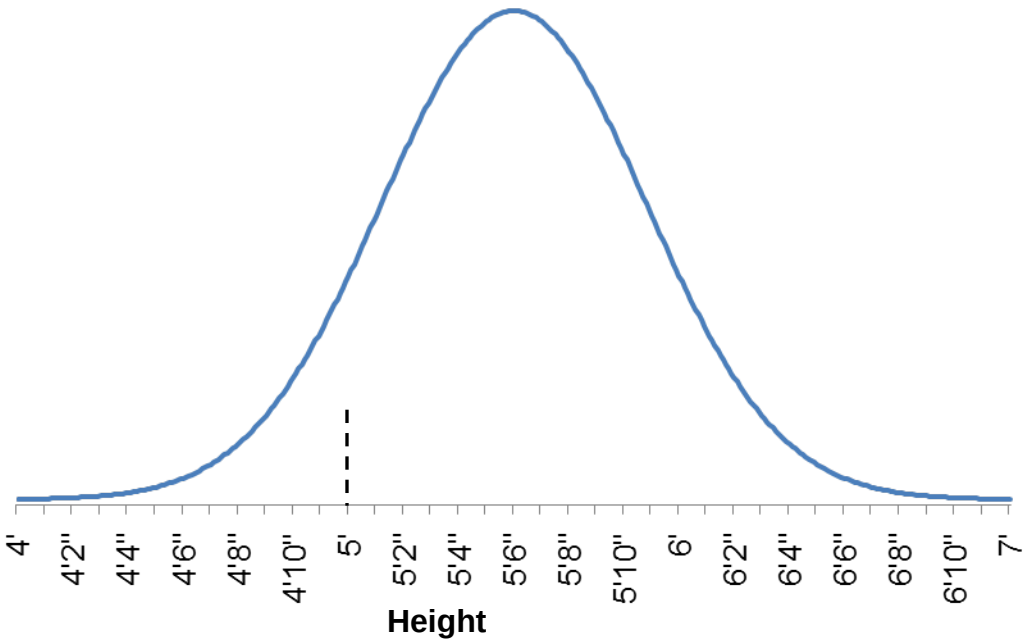

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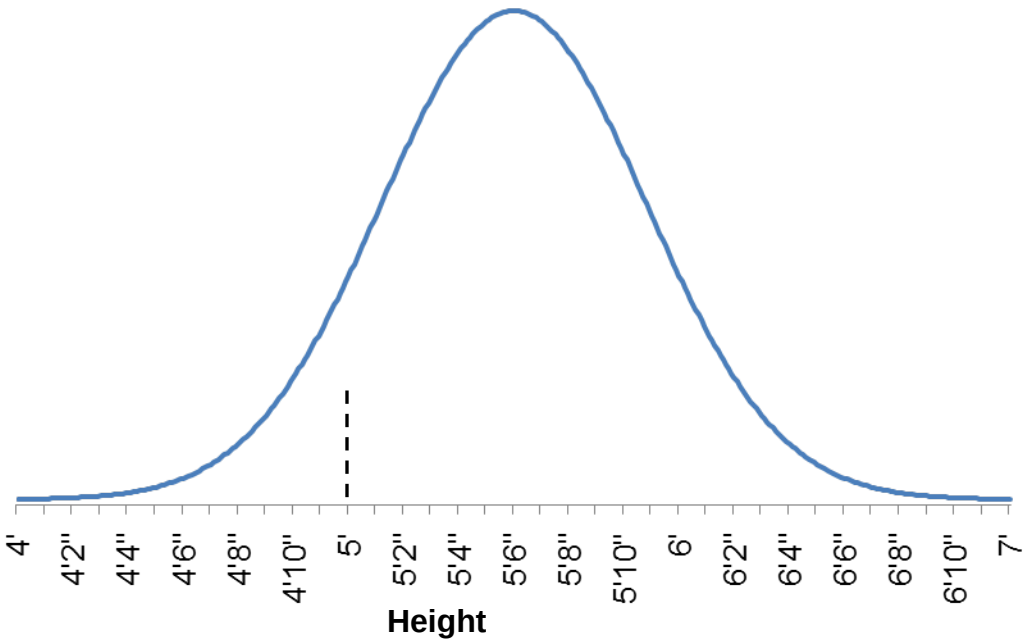

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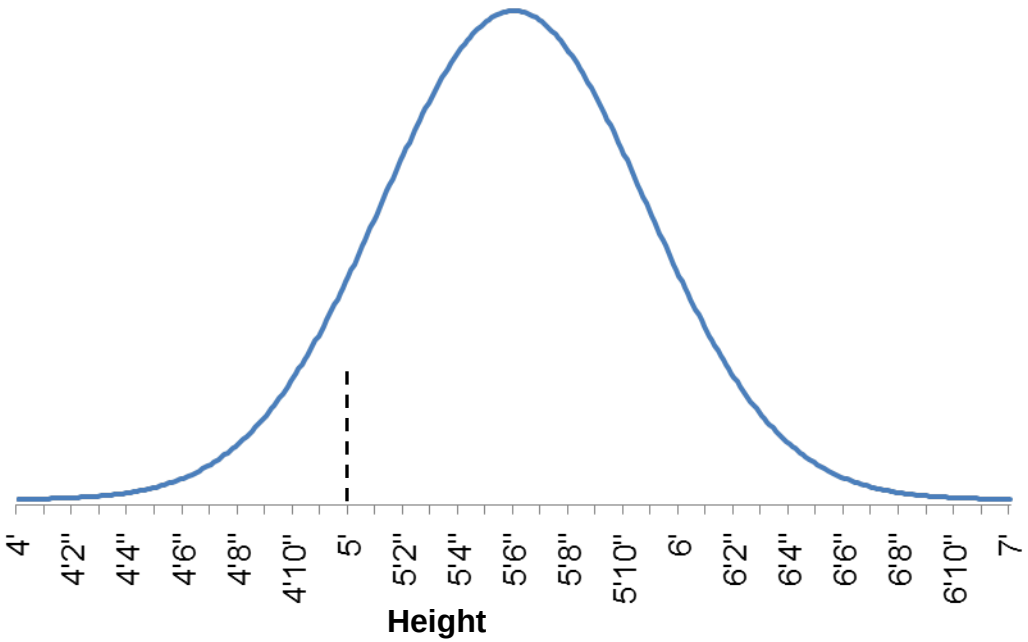

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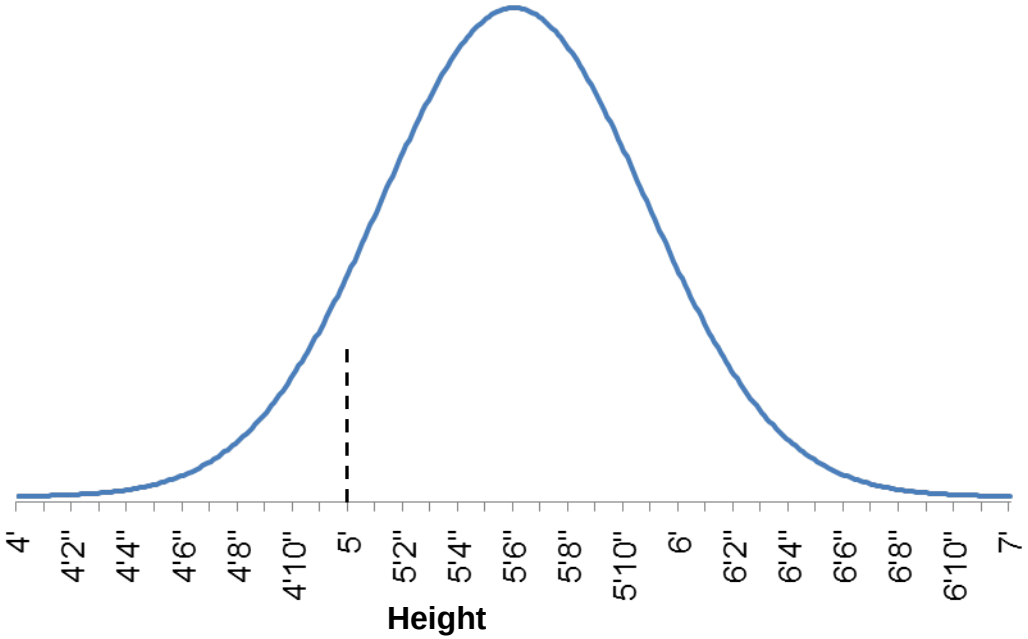

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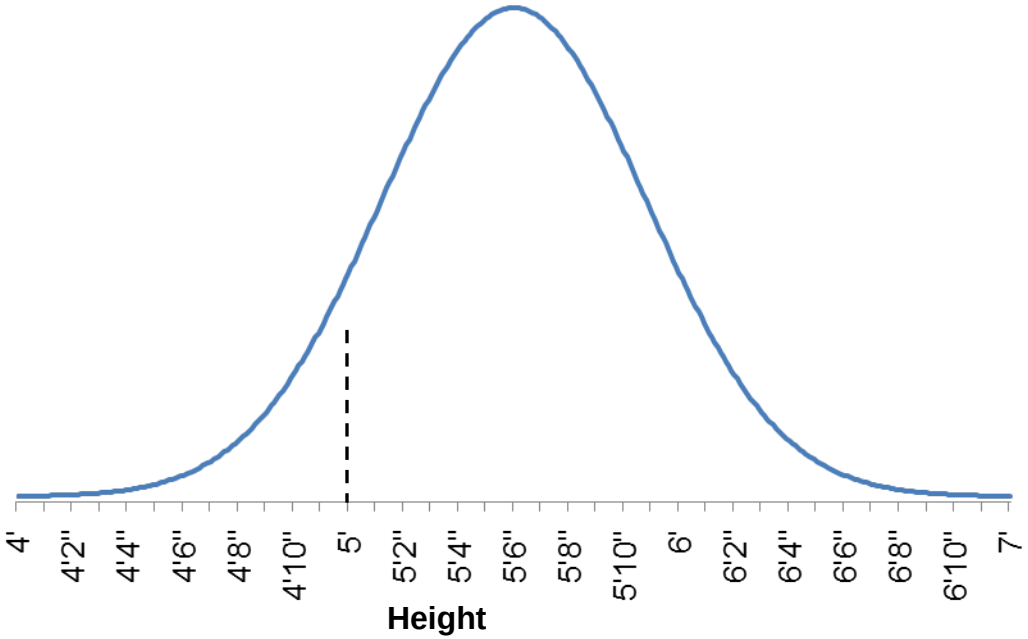

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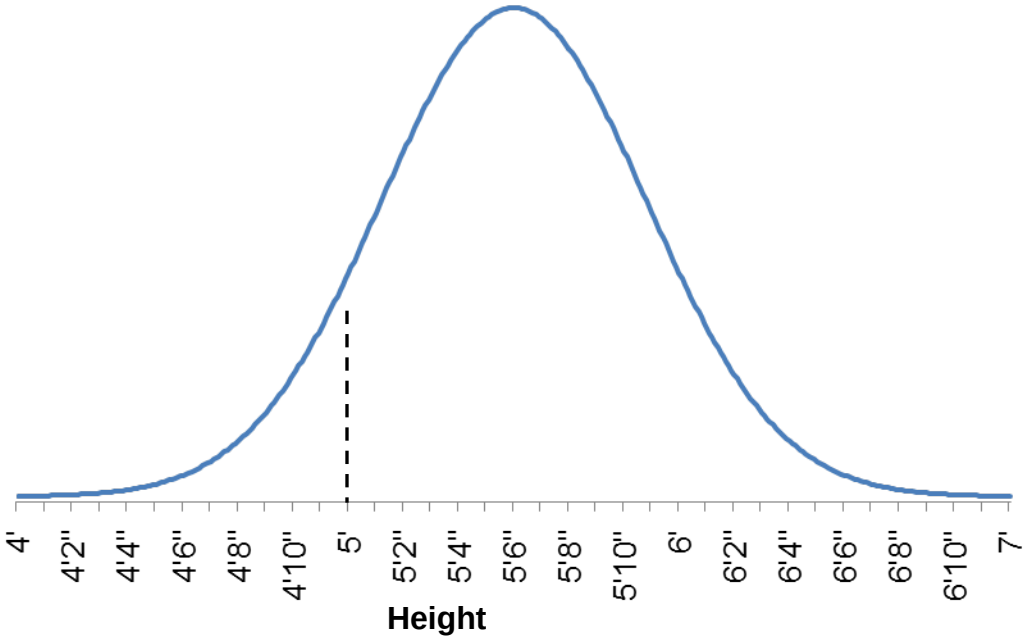

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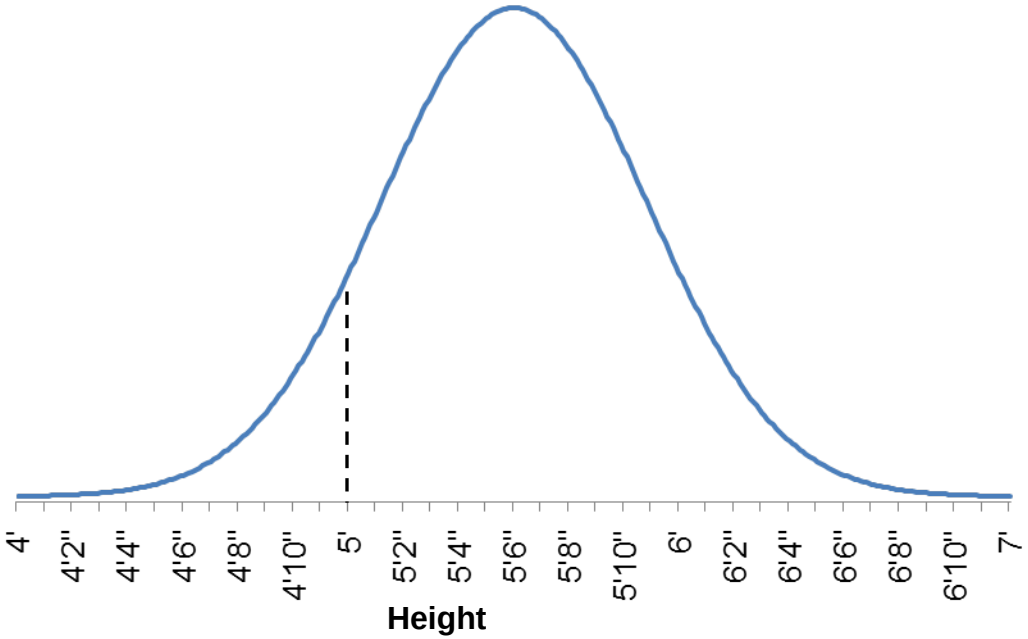

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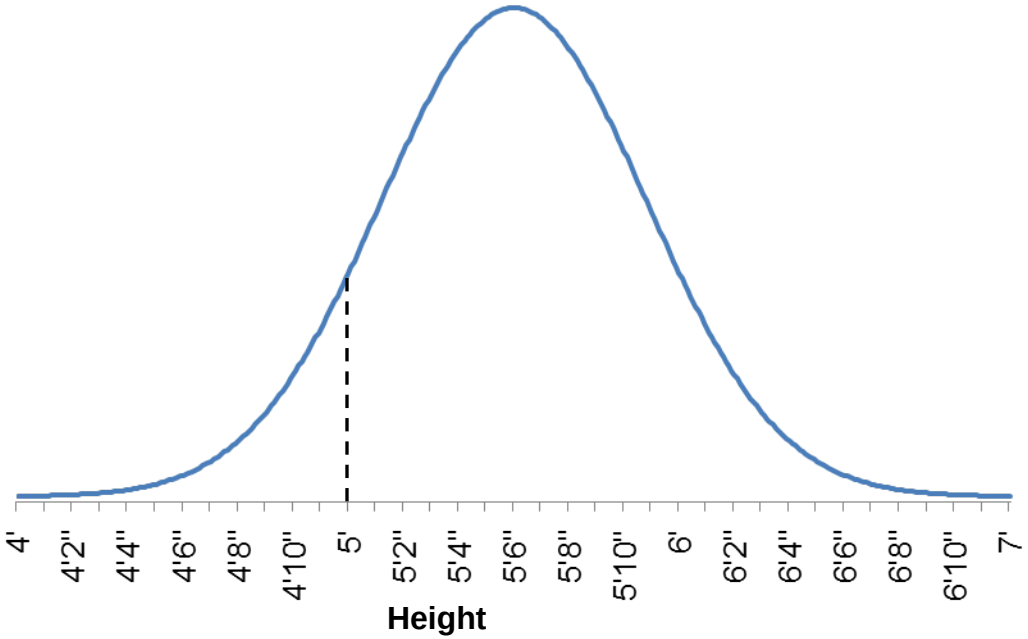

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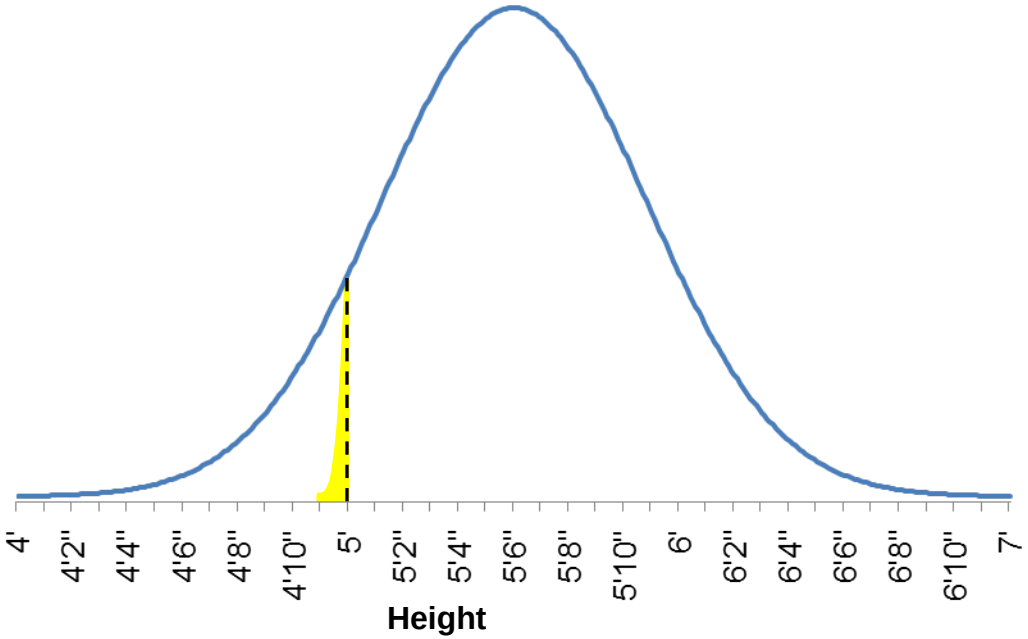

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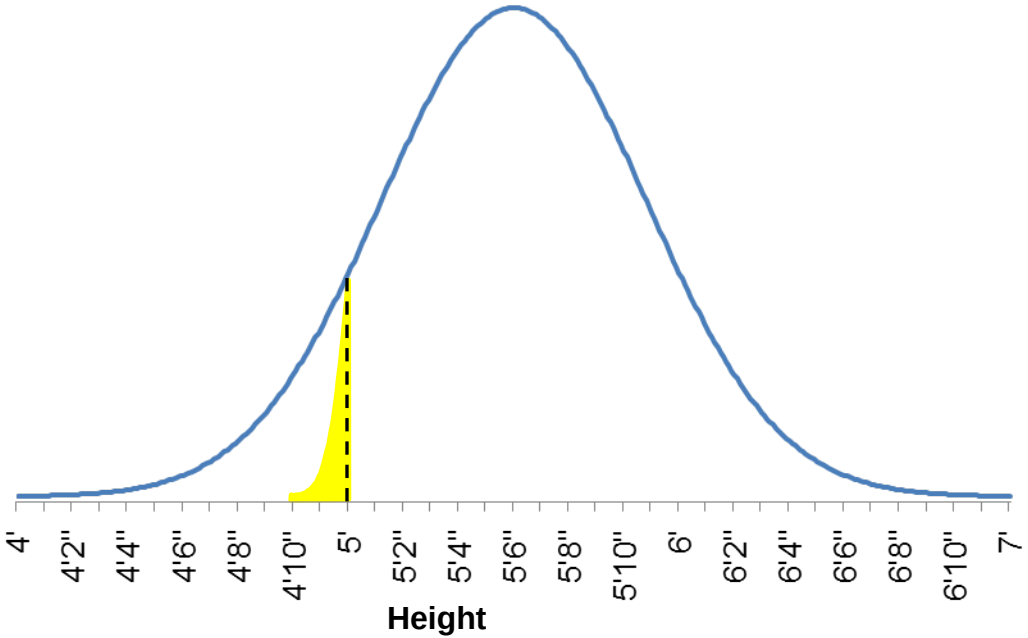
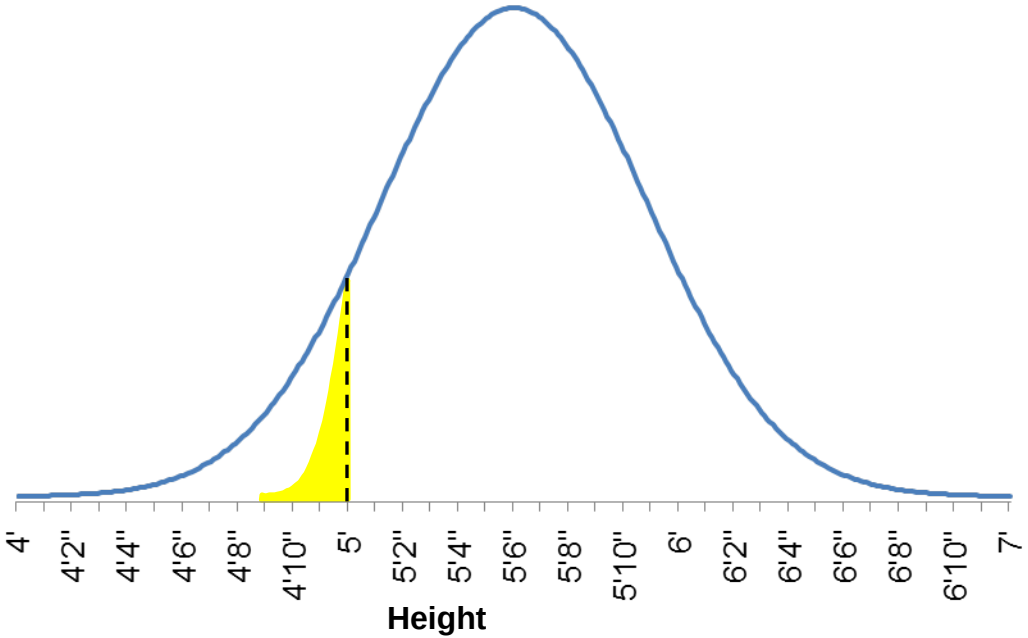


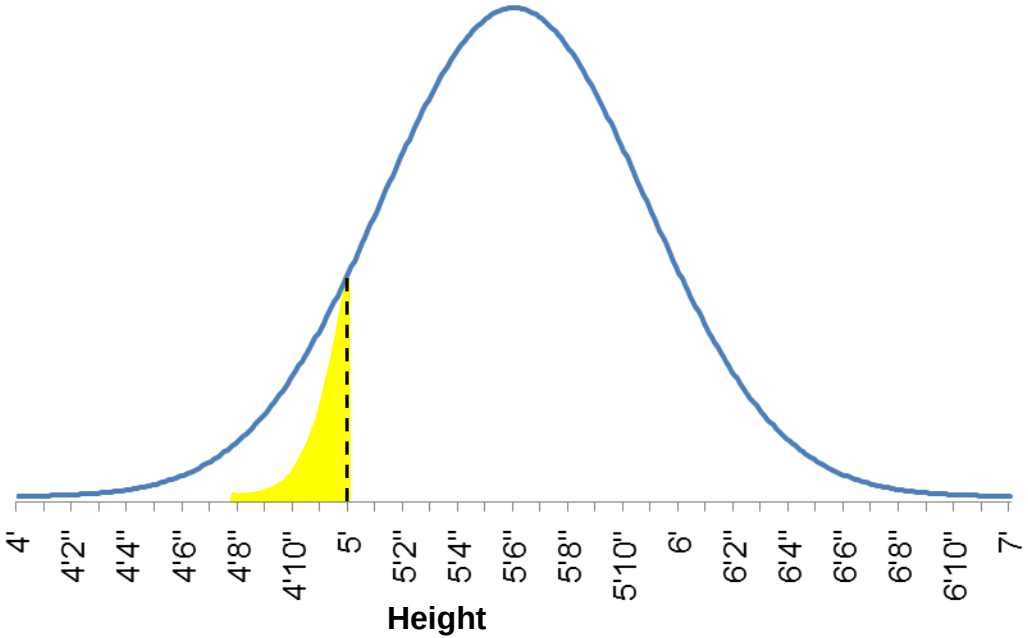
Heights of Men and Women

Prob(Height < 5′) = ?



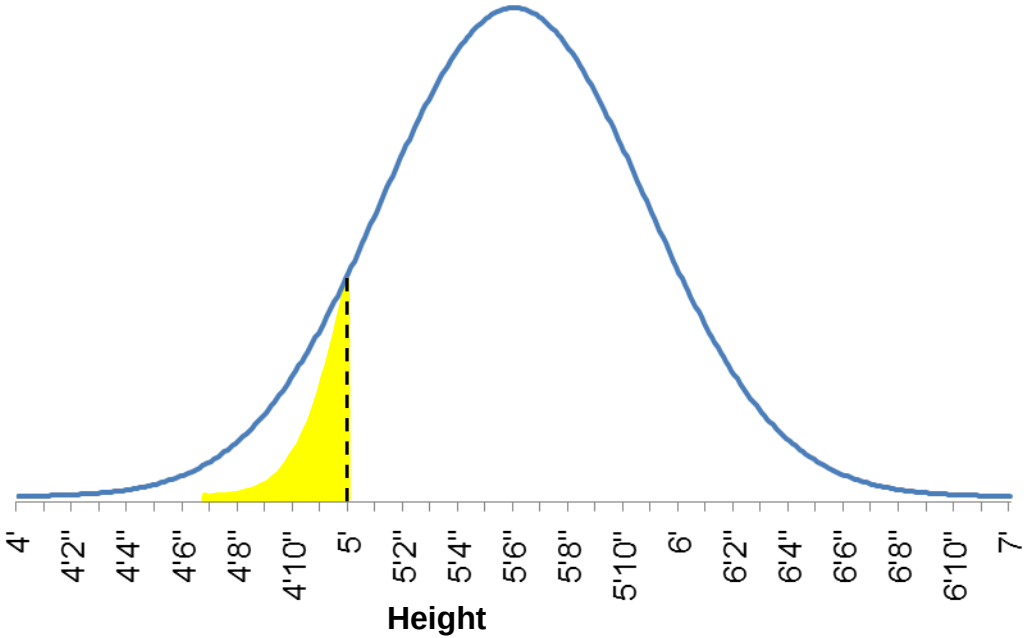
Heights of Men and Women

Prob(Height < 5′) = ?



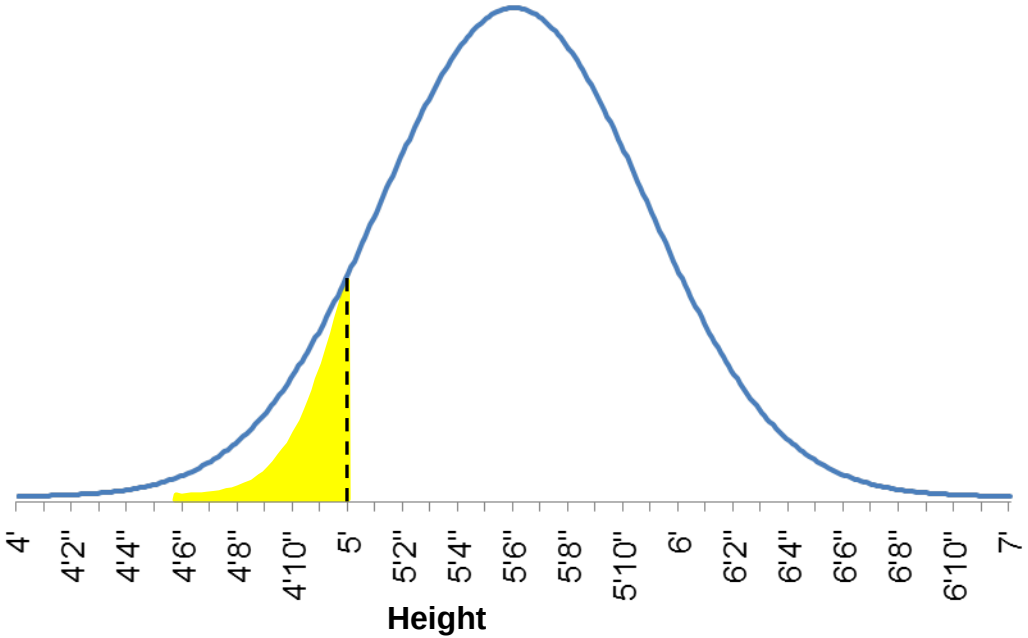
Heights of Men and Women

Prob(Height < 5′) = ?



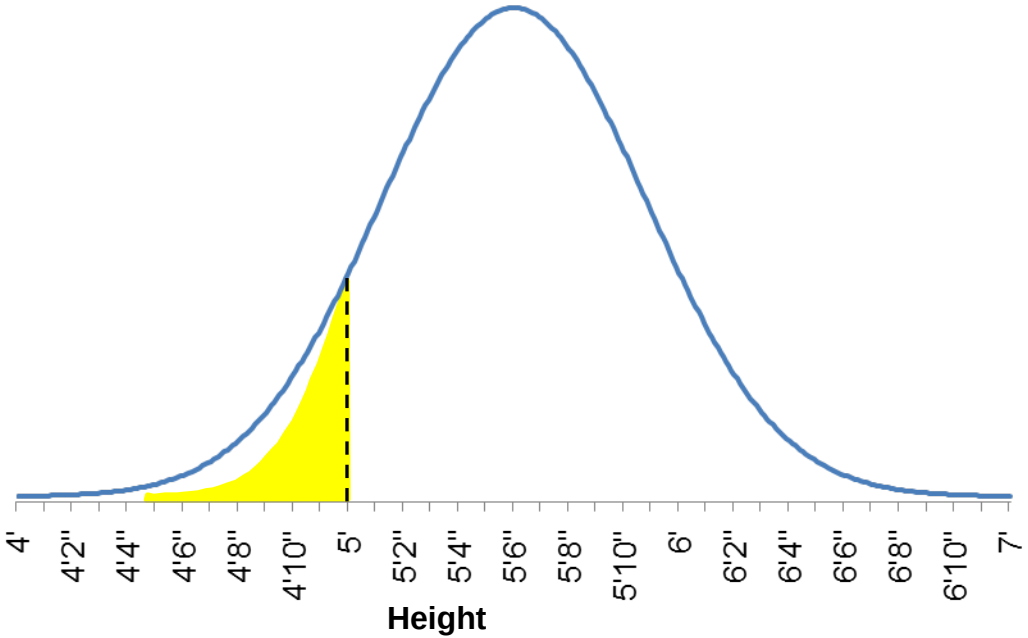
Heights of Men and Women

Prob(Height < 5′) = ?



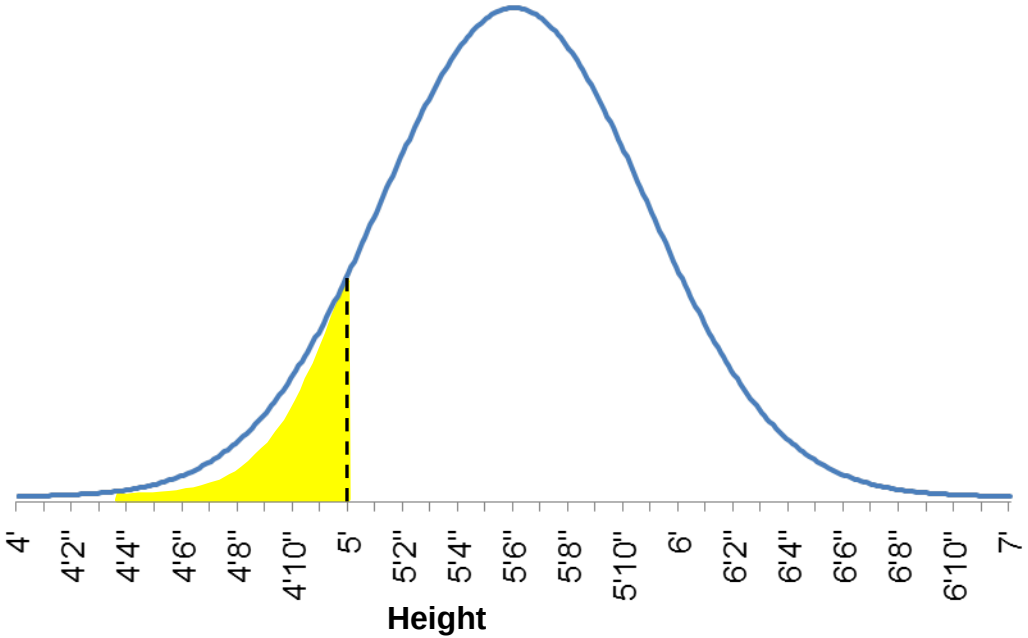
Heights of Men and Women

Prob(Height < 5′) = ?



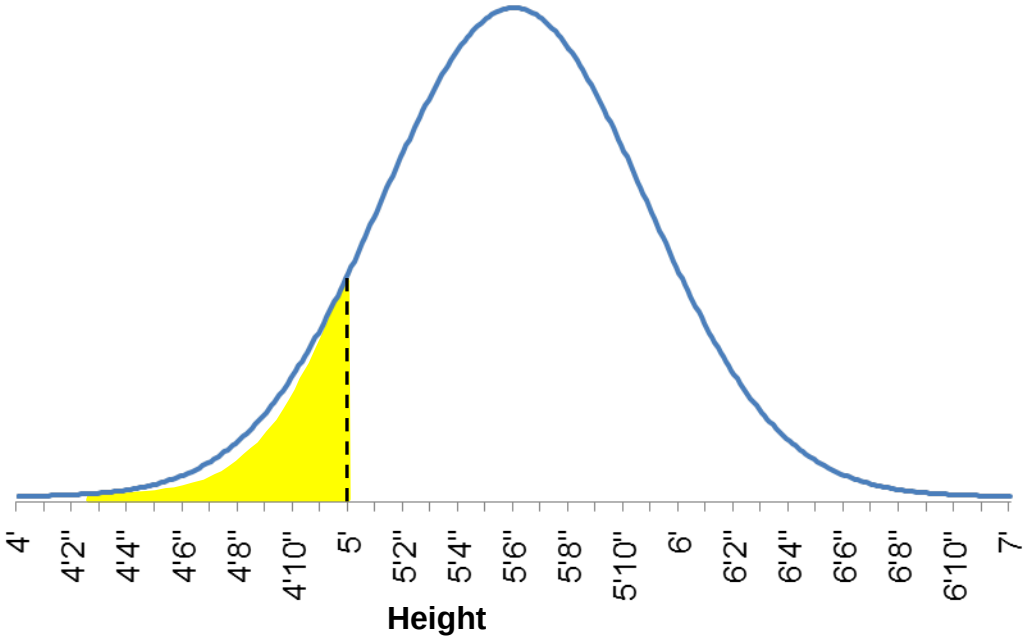
Heights of Men and Women

Prob(Height < 5′) = ?



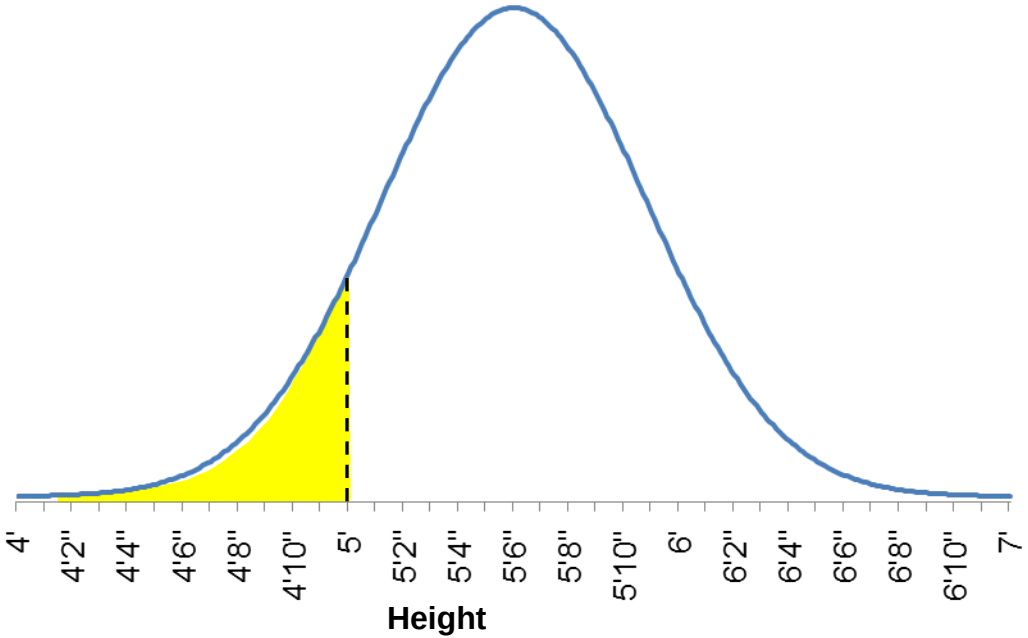
Heights of Men and Women

Prob(Height < 5′) = ?



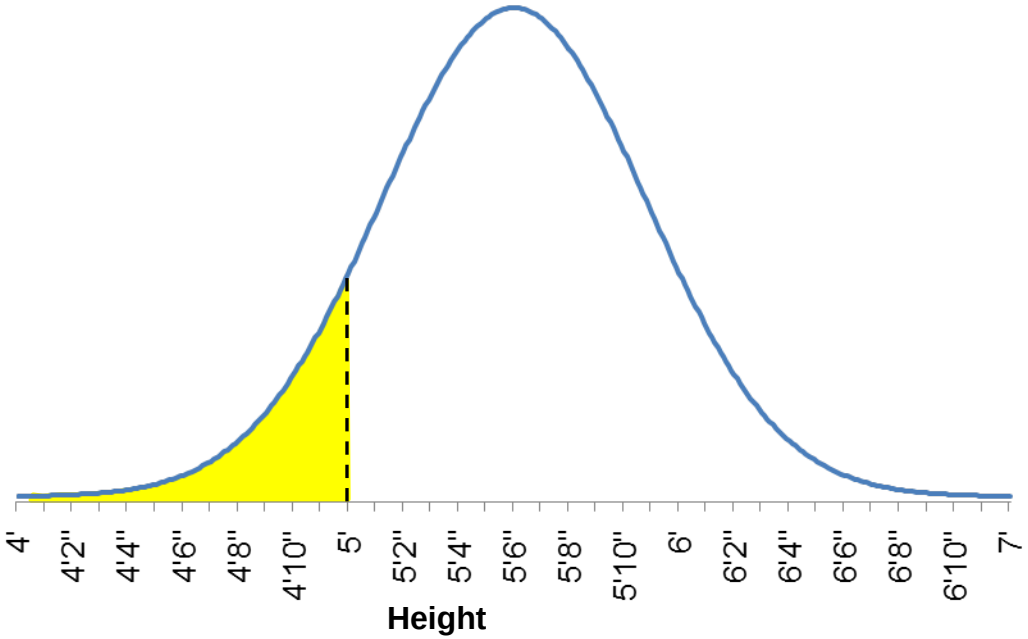
Heights of Men and Women

Prob(Height < 5′) = ?



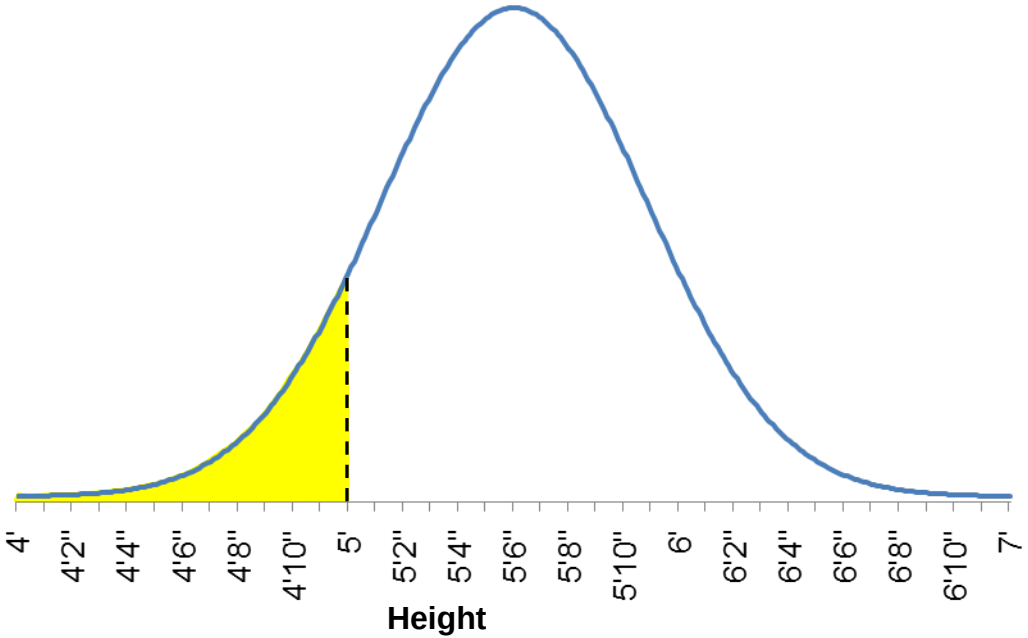
Heights of Men and Women

Prob(Height < 5′) = ?



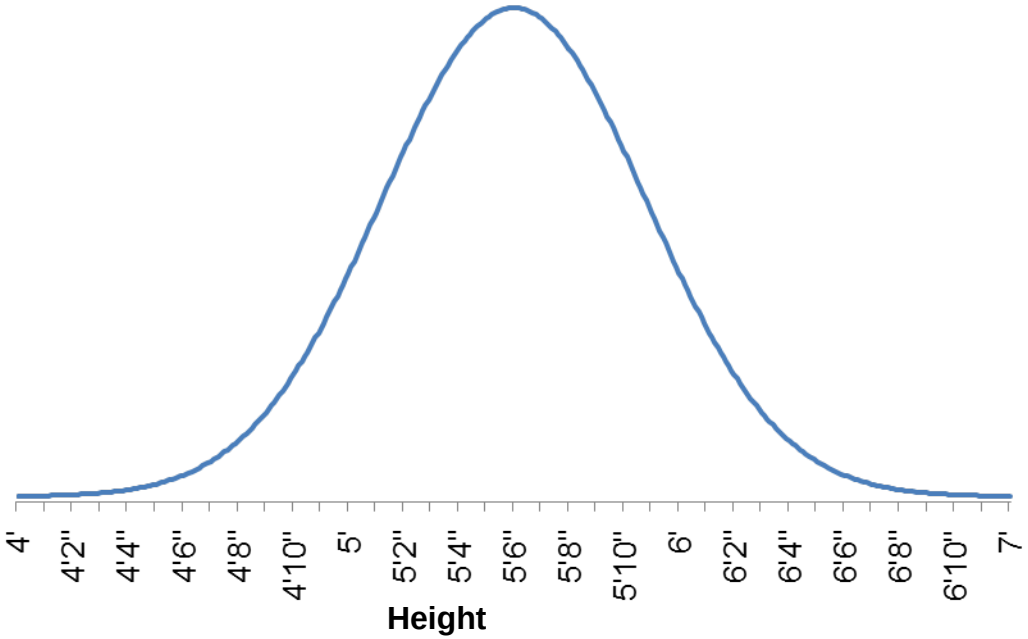
Heights of Men and Women

Prob(Height < 5′) = ?



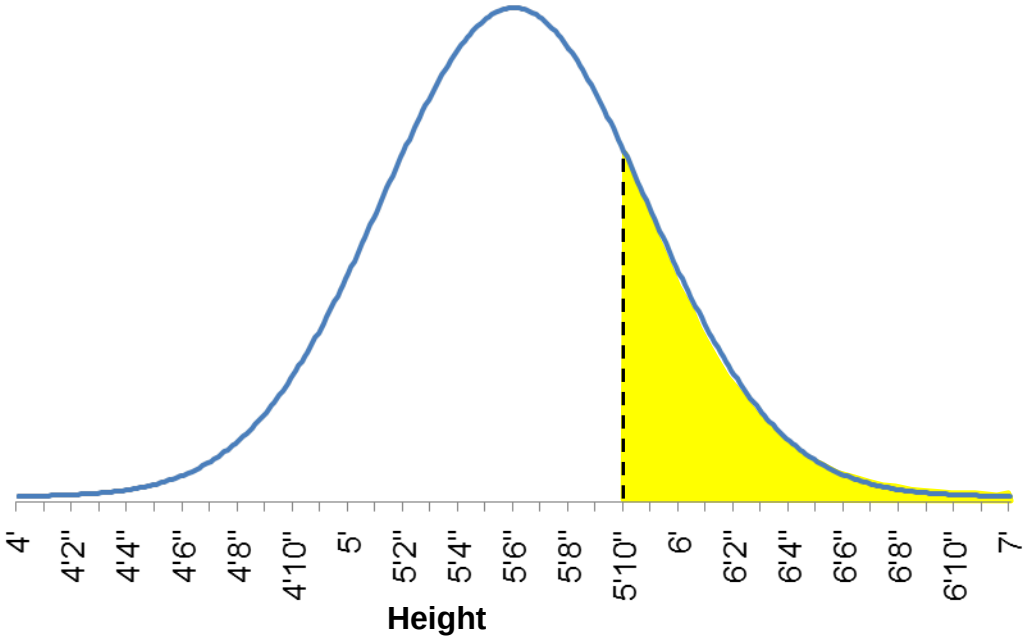
Heights of Men and Women

Prob(Height > 5′ 10″) = ?



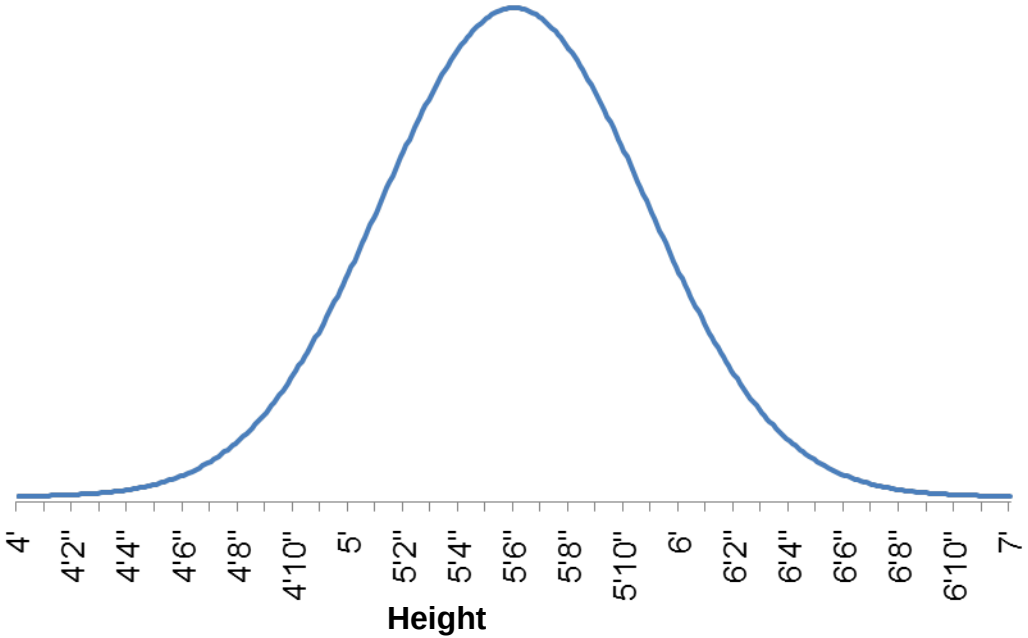
Heights of Men and Women

Prob(Height > 5′ 10″) = ?



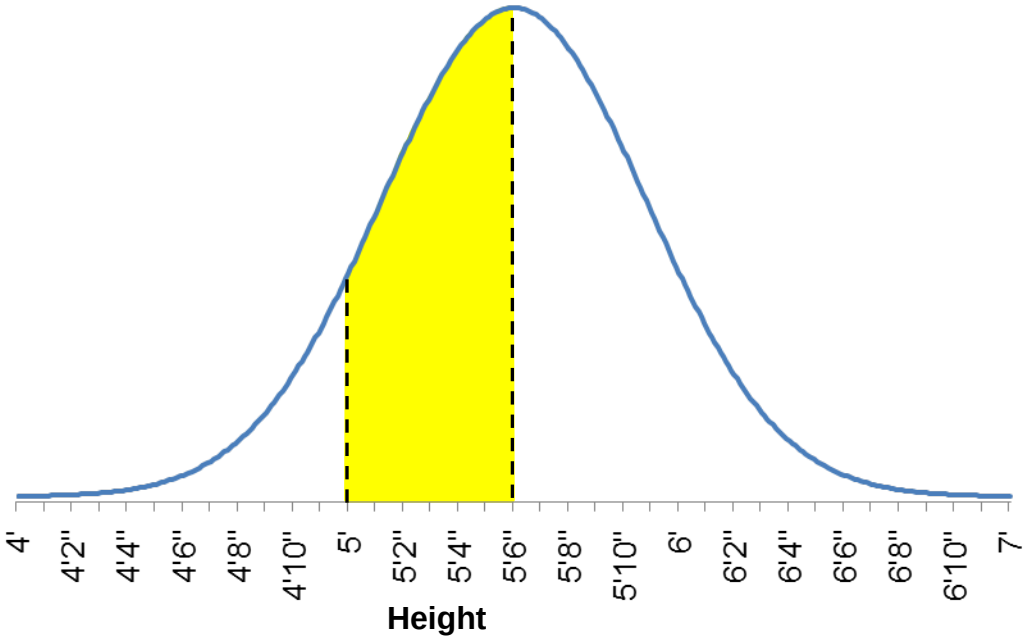
Heights of Men and Women

Prob(5′ < Height < 5′ 6″) = ?



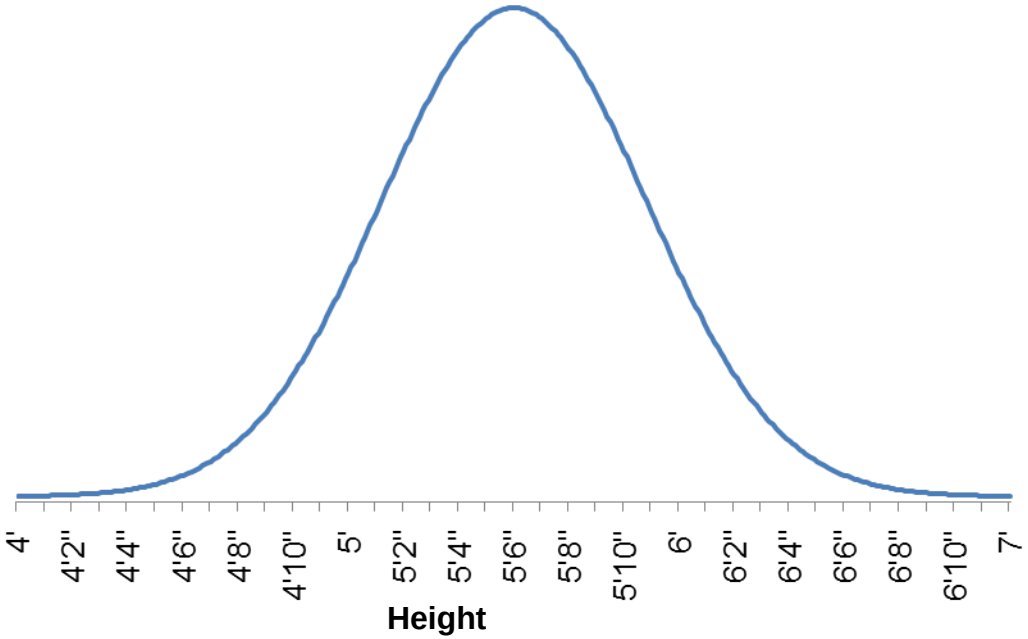
Heights of Men and Women

Prob(5′ < Height < 5′ 6″) = ?



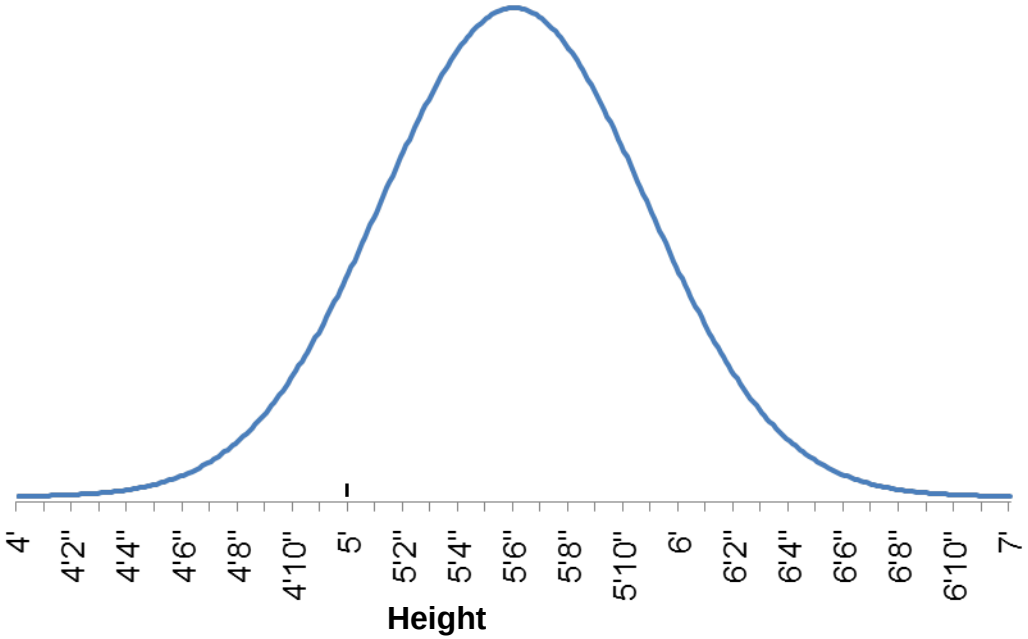
Heights of Men and Women

Prob(Height = 5′) = ?



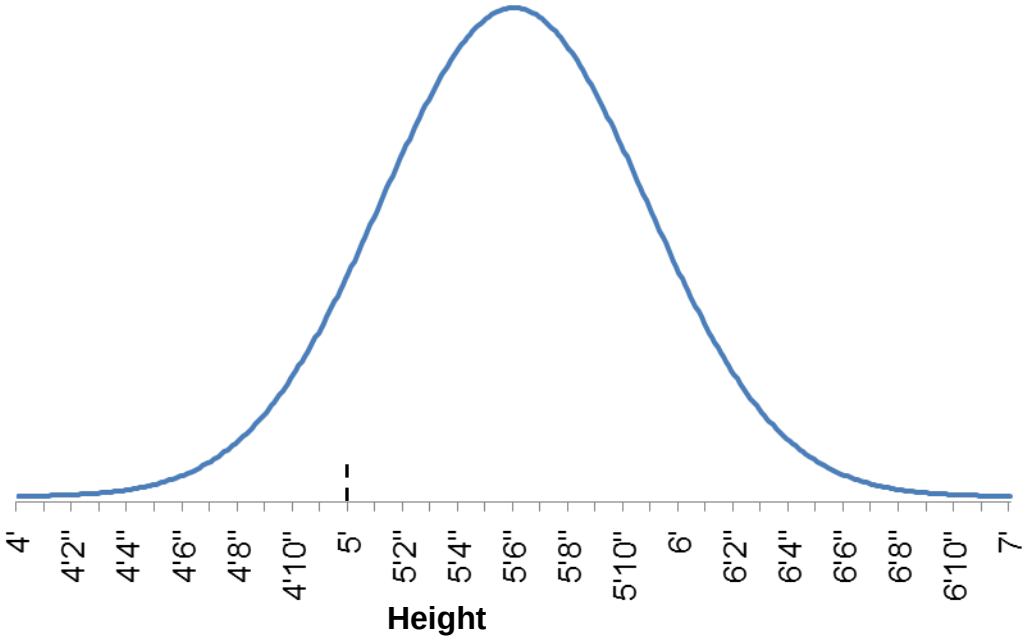
Heights of Men and Women

Prob(Height = 5′) = ?



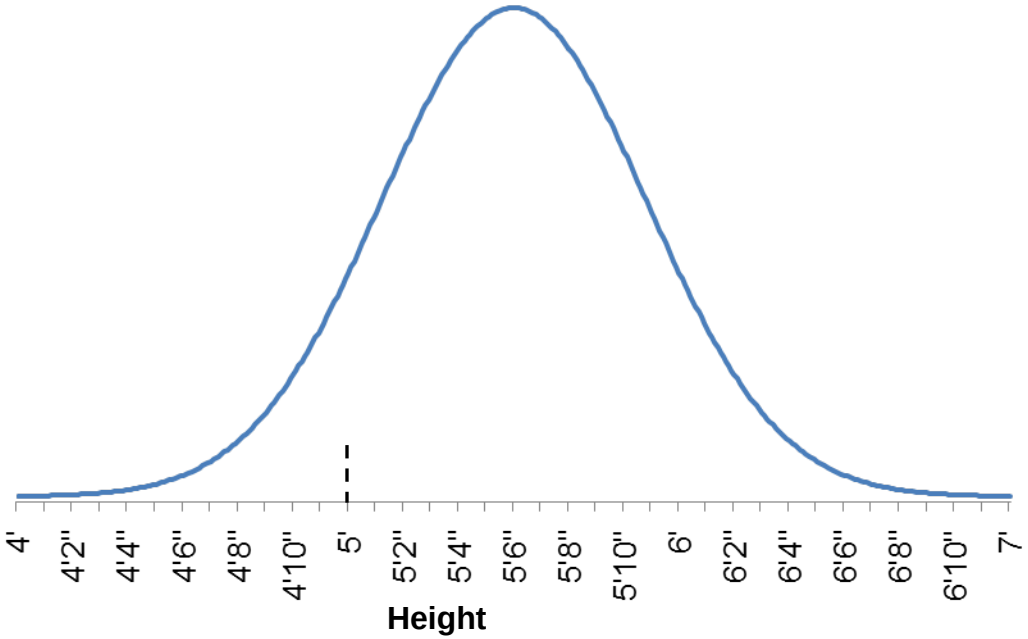
Heights of Men and Women

Prob(Height = 5′) = ?



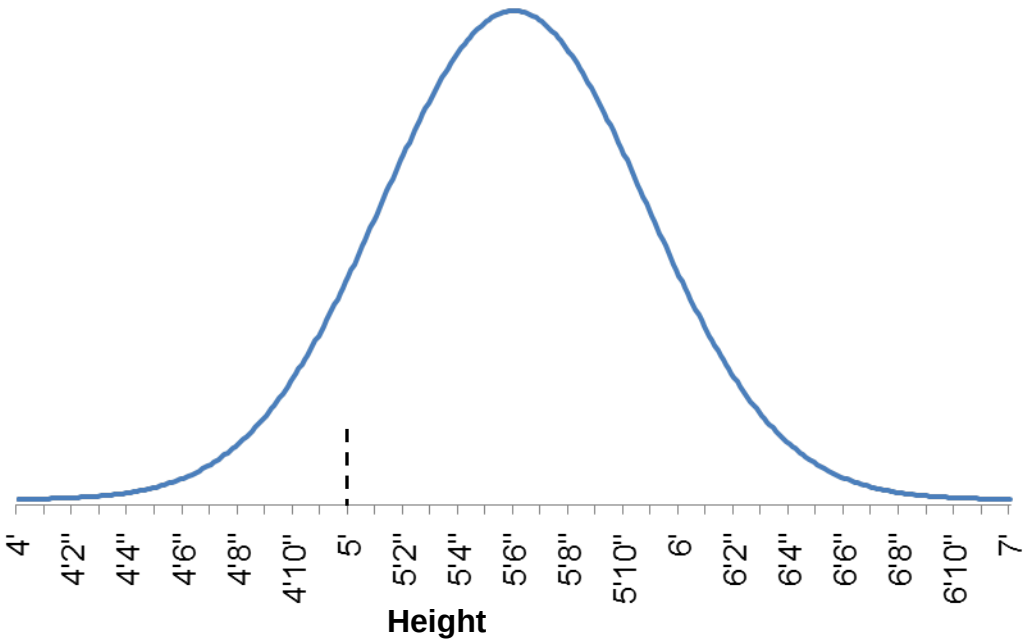
Heights of Men and Women

Prob(Height = 5′) = ?



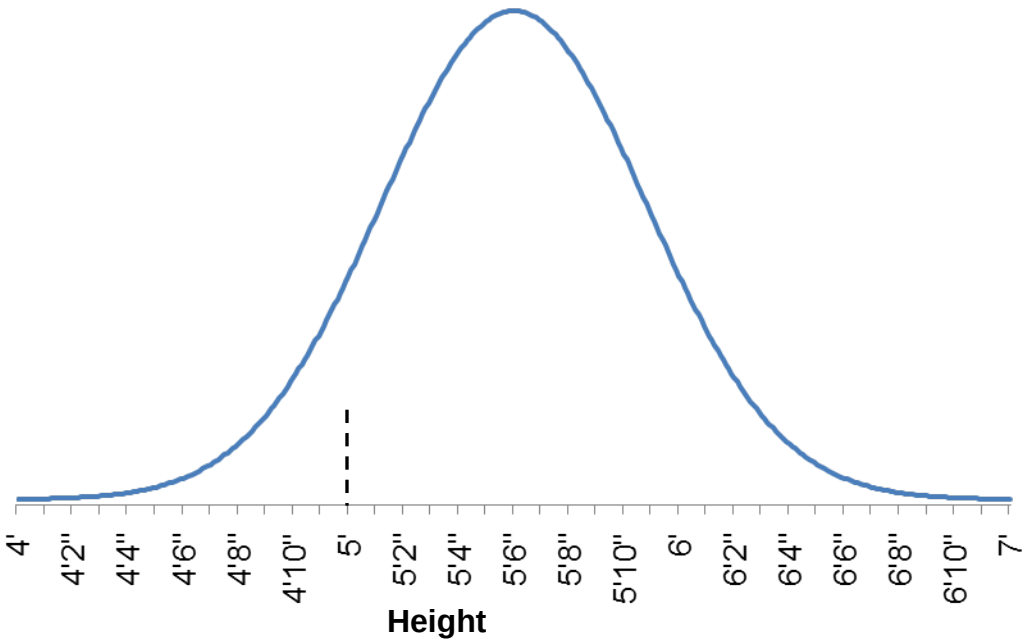
Heights of Men and Women

Prob(Height = 5′) = ?



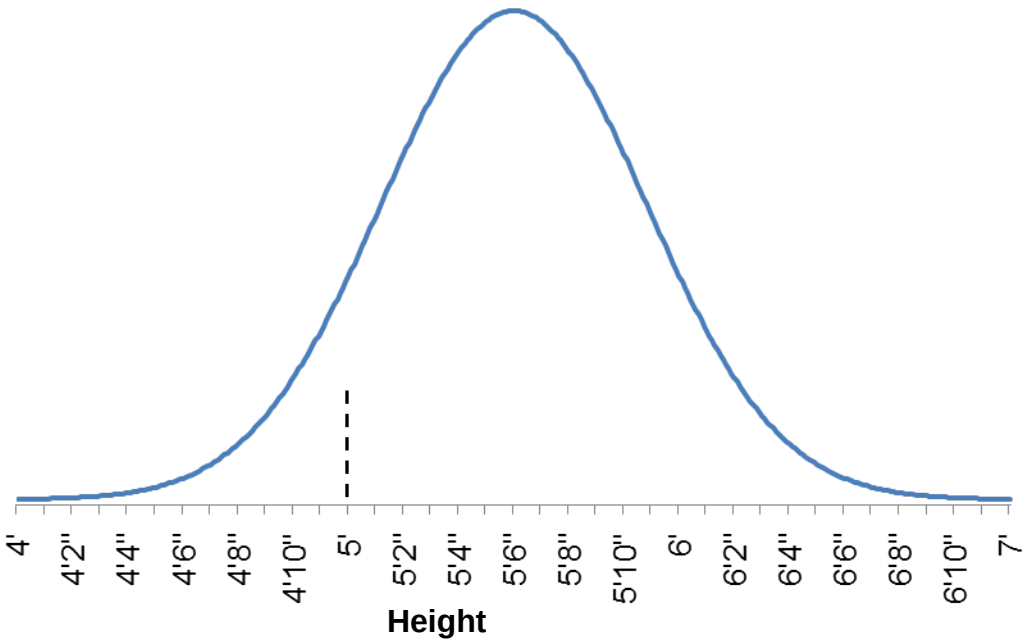
Heights of Men and Women

Prob(Height = 5′) = ?



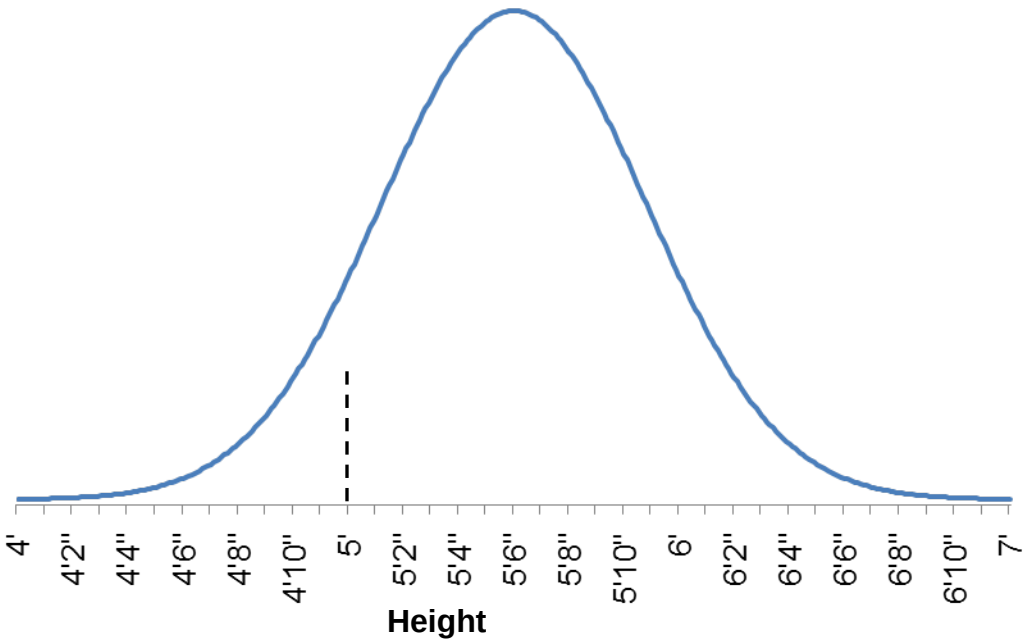
Heights of Men and Women

Prob(Height = 5′) = ?



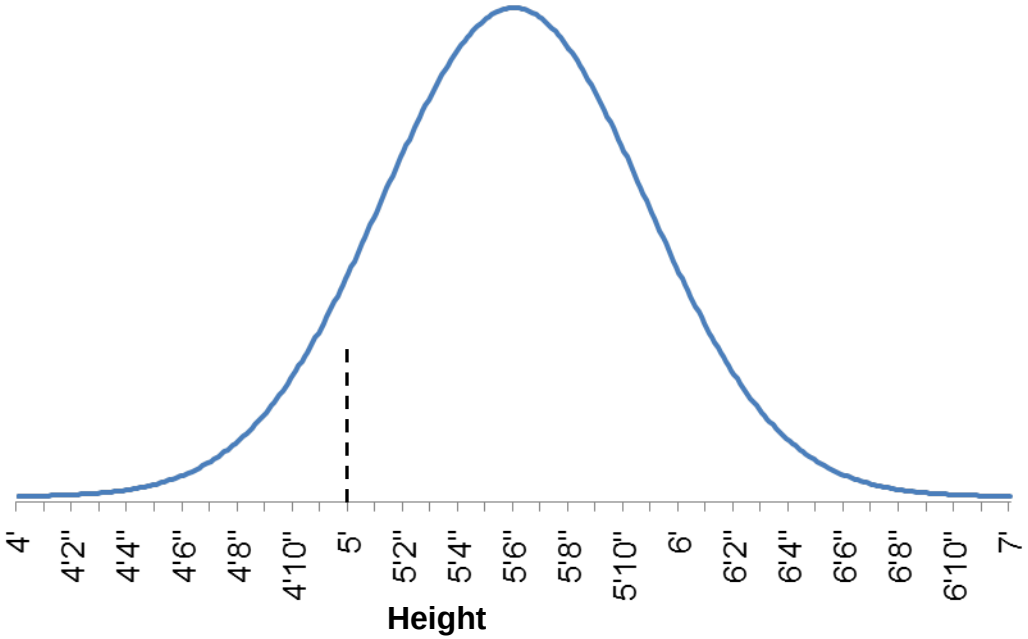
Heights of Men and Women

Prob(Height = 5′) = ?



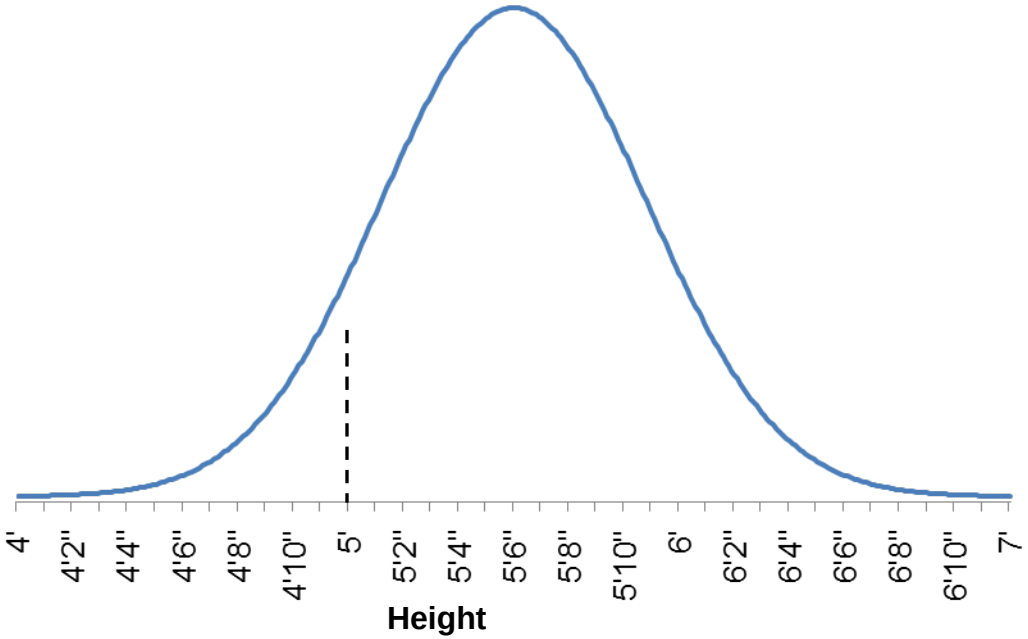
Heights of Men and Women

Prob(Height = 5′) = ?



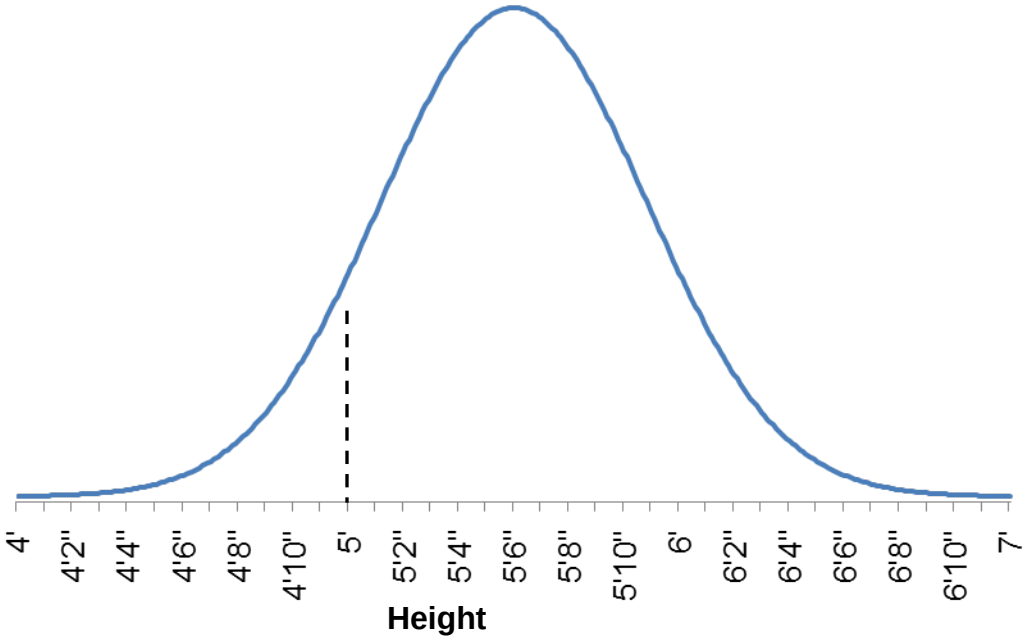
Heights of Men and Women

Prob(Height = 5′) = ?



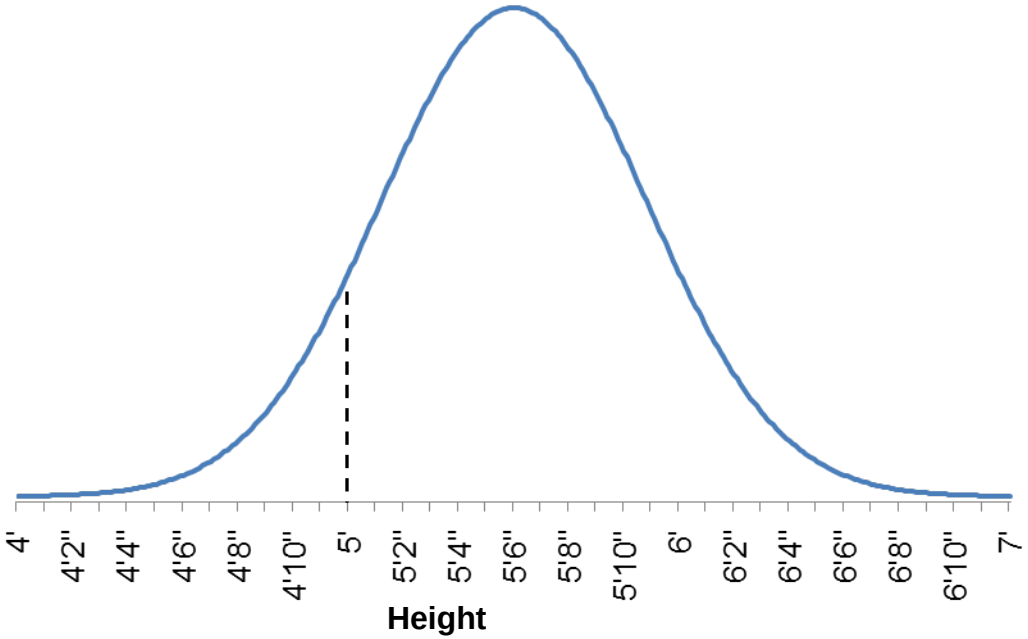
Heights of Men and Women

Prob(Height = 5′) = ?



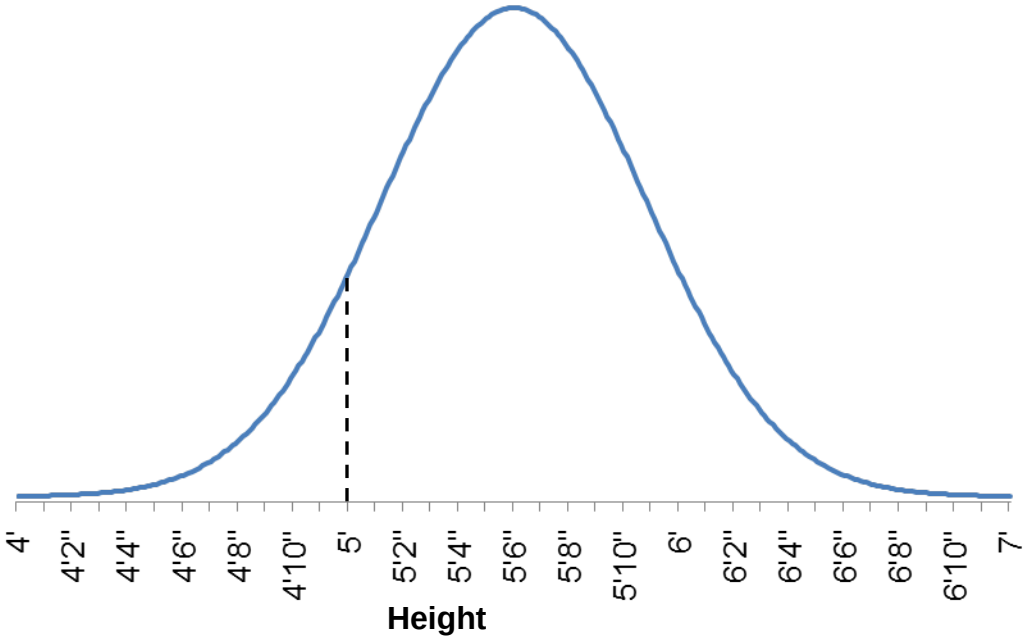
Heights of Men and Women

Prob(Height = 5′) = ?



Heights of Men and Women

Prob(Height = 5′) = ?



Heights of Men and Women

Prob(Height = 5′) = **0**