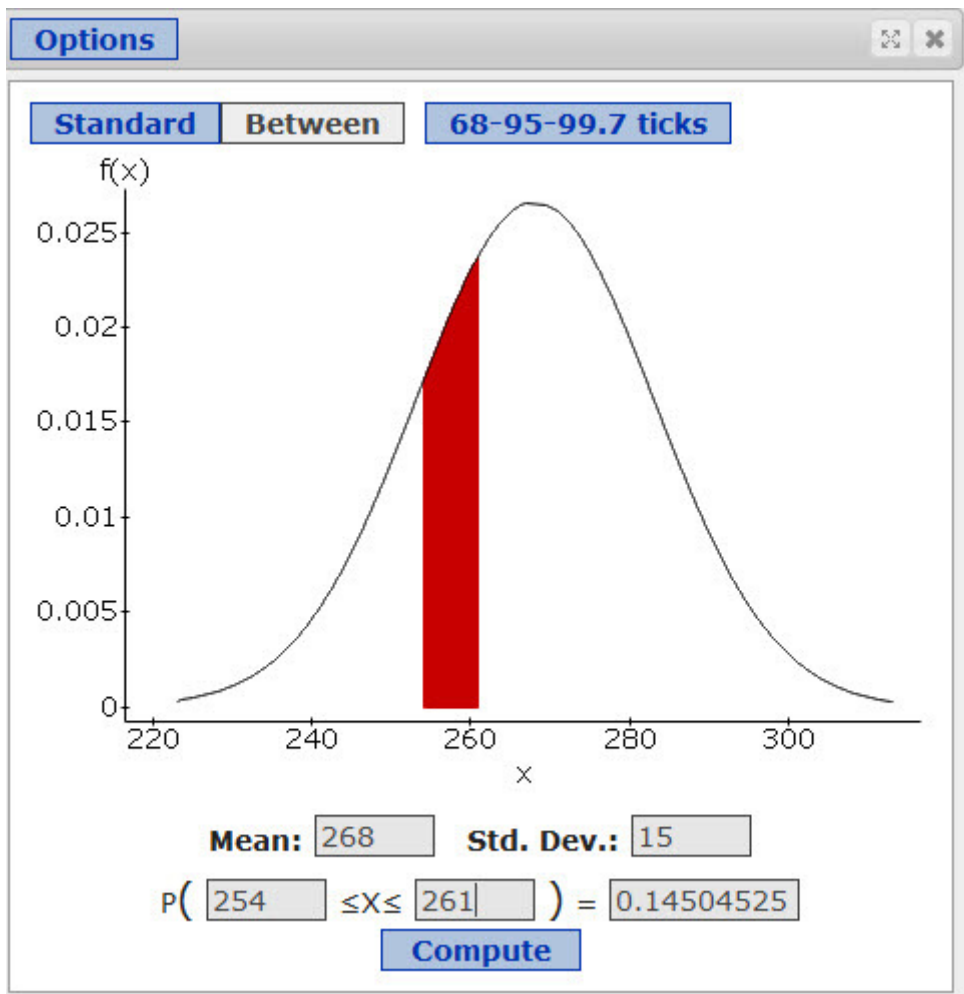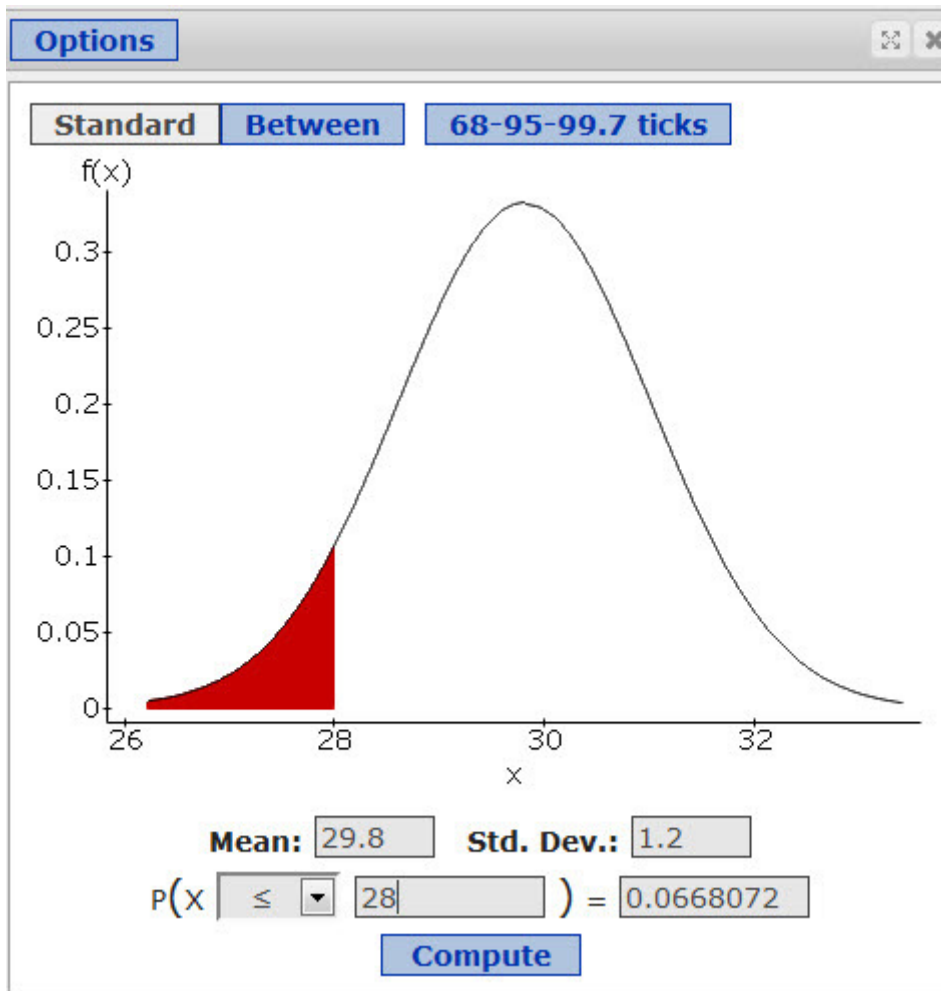# Getting Ready for the Midterm – Chapter 7

Practice Problems – Answer Key

1) The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. Find the probability that a human pregnancy lasts between 254 days and 261 days.

Options ⛶ ✖

| Standard | Between | 68-95-99.7 ticks |

f(x)

0.025
0.02
0.015
0.01
0.005
0

220   240   260   280   300

X

Mean: 268   **Std. Dev.:** 15

P(254   ≤X≤ 261) = 0.14504525

Compute

Answer: 0.1450

2) The heights of 12-month-old boys are approximately normally distributed with a mean of 29.8 inches and a standard deviation of 1.2 inches. Find the probability that a 12-month-old boy is less than 28 inches tall.
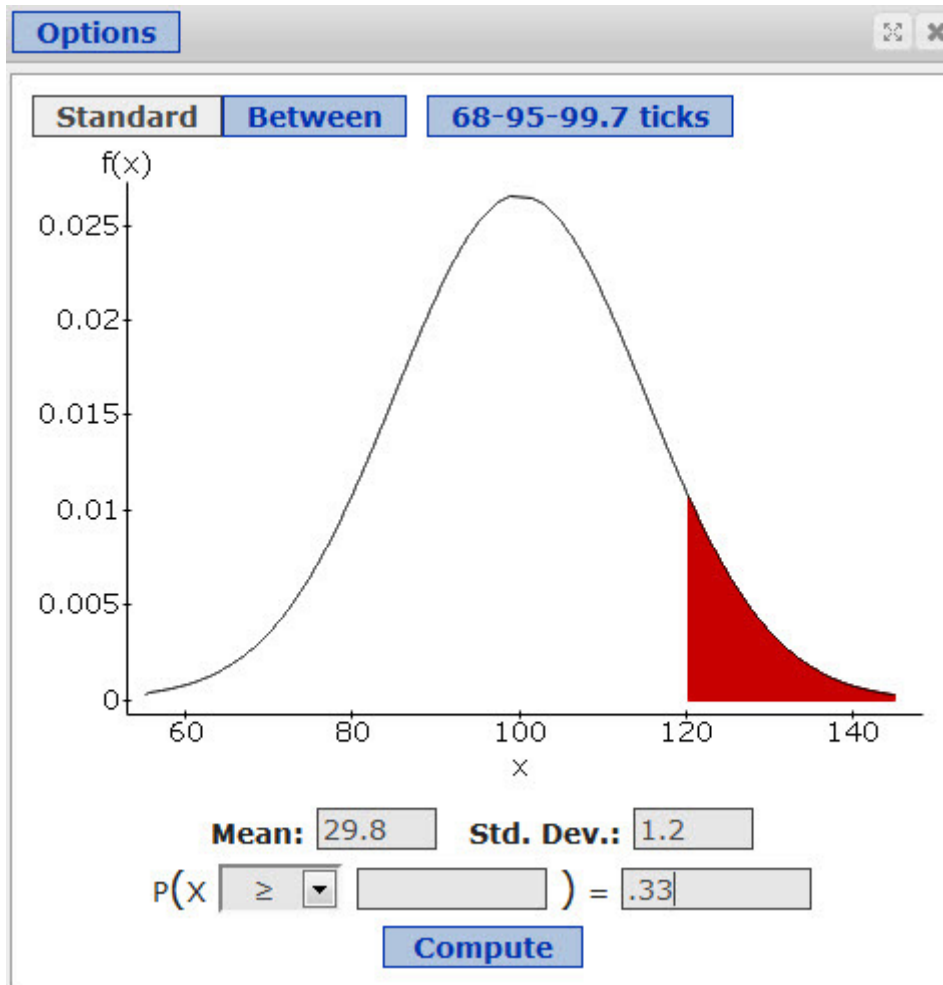
Options

| Standard | Between | 68-95-99.7 ticks |

f(x)

Mean: 29.8   Std. Dev.: 1.2

$P(X \leq 28) = 0.0668072$

Compute

Answer: 0.0668

3) IQ scores are approximately normally distributed with a mean of 100 points, and a standard deviation of 15 points. IQ scores are always in whole numbers. Find the probability that a person has an IQ that is at least 120.
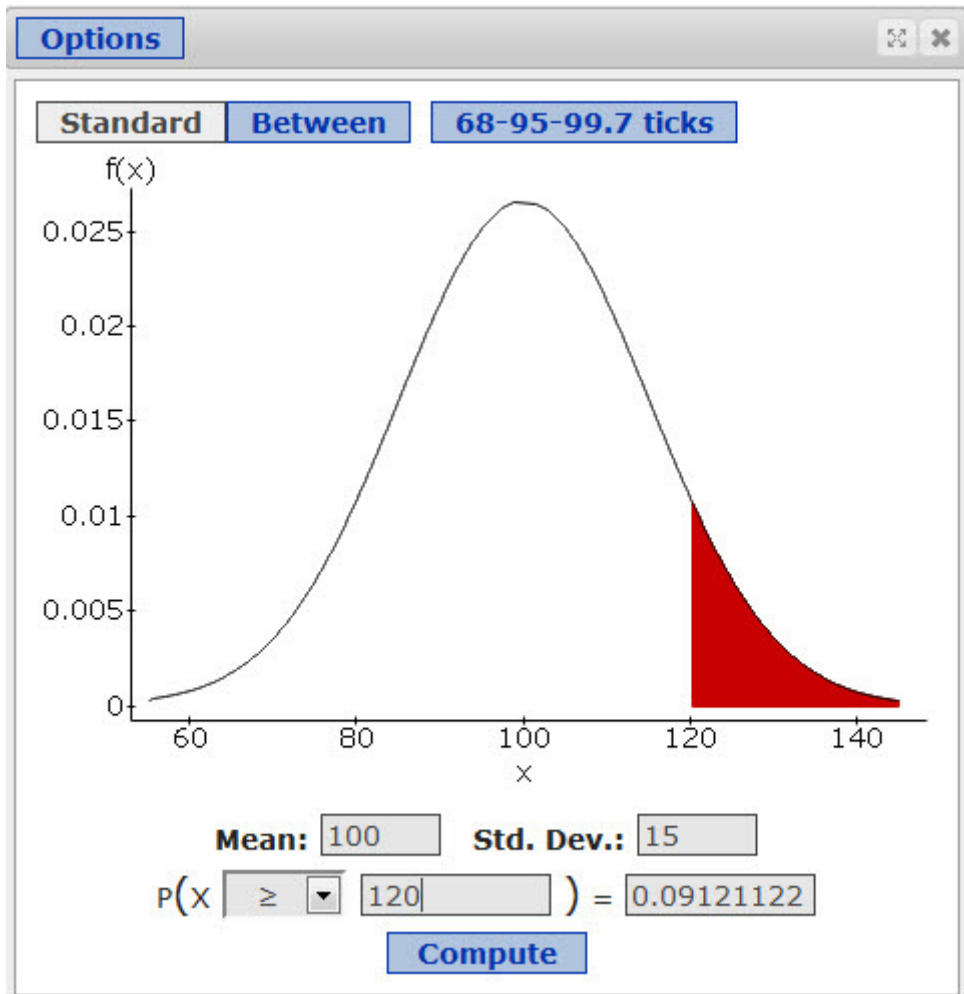

Answer: 0.0912

4) The heights of 12-month-old boys are approximately normally distributed with a mean of 29.8 inches and a standard deviation of 1.2 inches. What height separates the tallest 33% of all 12-month-old boys from the rest?
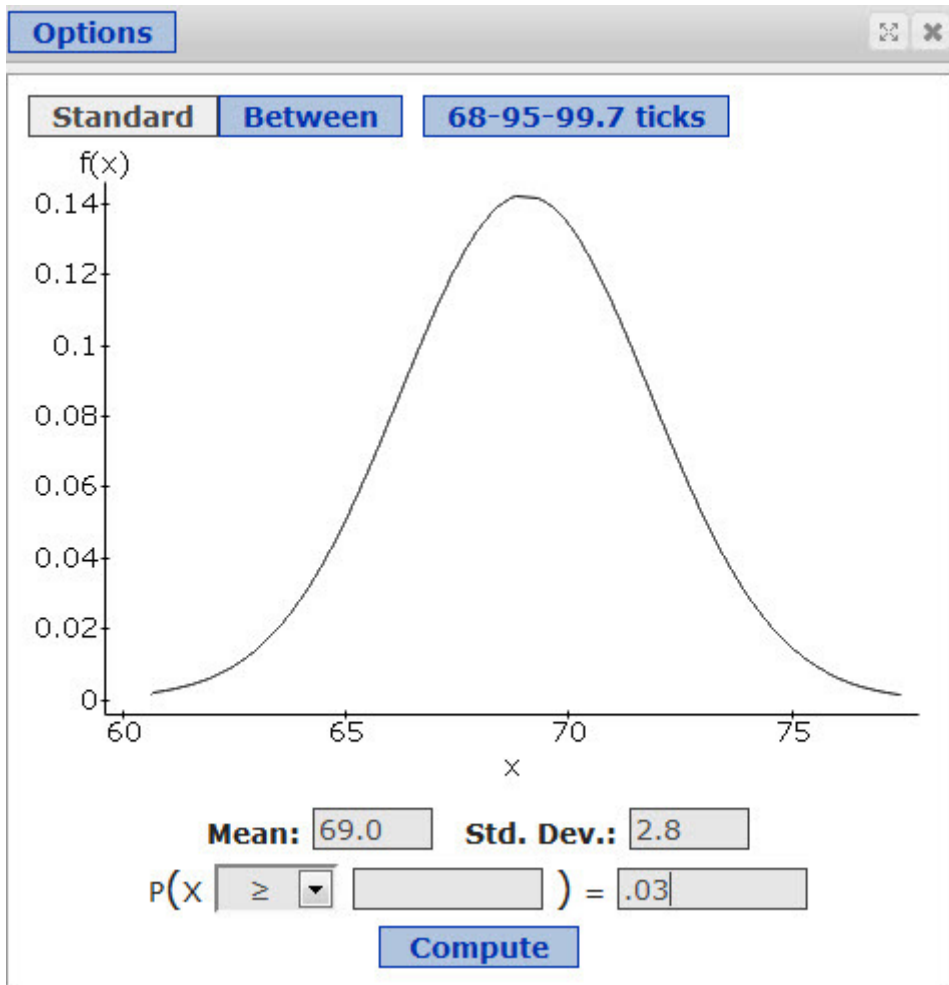
Options

Standard **Between** **68-95-99.7 ticks**

f(x)

0.025

0.02

0.015

0.01

0.005

0

60   80   100   120   140

X

Mean: 29.8   **Std. Dev.:** 1.2

$P(X \geq \boxed{\quad}) = .33$

Compute

Answer: 30.3 inches

5) A statistics final exam produces scores that are approximately normally distributed with a mean of 225 points and a standard deviation of 20 points. There are 300 points possible on the exam, and scores are always whole numbers. Five percent of all students score below what score?
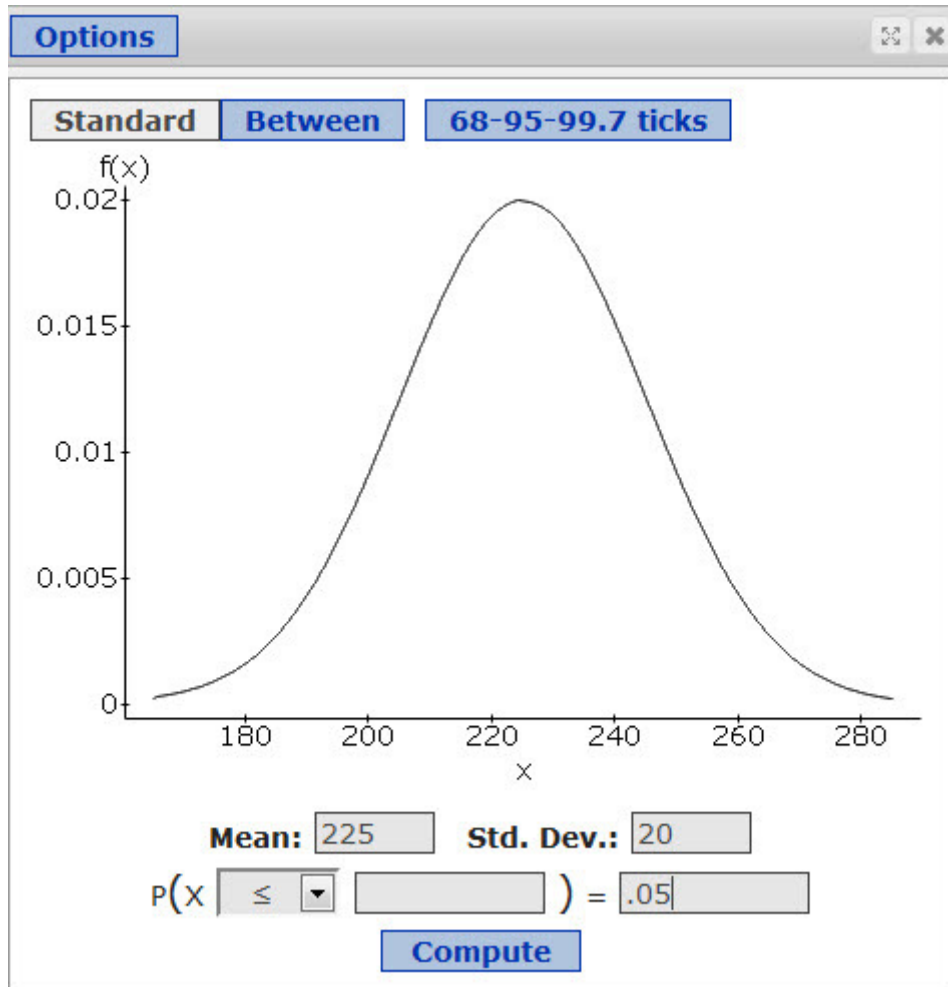
Answer: 193 points (Round 192.1 up to 193)

6) The heights of adult males are normally distributed with a mean of 69.0 inches and a standard deviation of 2.8 inches. A builder wants to make the height of his doorways so that only 3% of adult males will have to duck upon entering the room. How high should the doorways be?

Options

Standard | **Between** | **68-95-99.7 ticks**

f(x)

X

Mean: 69.0   **Std. Dev.:** 2.8

$P(X \geq \blacktriangledown \quad) = .03$

Compute

Answer: 74.3 inches