

Normal Distributions and Standard Scores

The table below shows the average weight (in kilograms) and standard deviation of U.S. males from birth until 12 ½ months. Using the information you learned about properties of the normal distribution, standard deviations, and Z scores to find the answers to the following problems.

1. Tommy is 3 ½ months old and weighs 6.41kg. What percentage of males, at his age, weigh more than him.
2. Paul is 11 ½ months old and weighs 10.02kg. What percentage of males, his age, weigh more than him?

Age in Months	Mean Weight (kg)	SD
0	3.53	0.15
0.5	4	0.15
1.5	4.88	0.14
2.5	5.67	0.13
3.5	6.39	0.12
4.5	7.04	0.12
5.5	7.63	0.12
6.5	8.16	0.12
7.5	8.64	0.11
8.5	9.08	0.11
9.5	9.48	0.11
10.5	9.84	0.11
11.5	10.16	0.11
12.5	10.46	0.11
13.5	10.73	0.11

3. A recently diagnosed patient with Alzheimer's disease takes a cognitive abilities test. The patient scores a 54 on the test (mean = 52, standard deviation = 5). What percent of individuals would receive a higher score?
4. A fifth grader takes a standardized achievement test (mean = 125, sd = 15) and scores a 148. What is this child's percentile rank?
5. Pat and Chris both took a spatial abilities test (mean = 80, sd = 8). Pat scored a 76 and Chris scored a 94. What percent of individuals would score between Pat and Chris?