## Practice Run

1. Determine the probability that a data value from a normal distribution will have a $z$-score between 1.41 and 2.03.

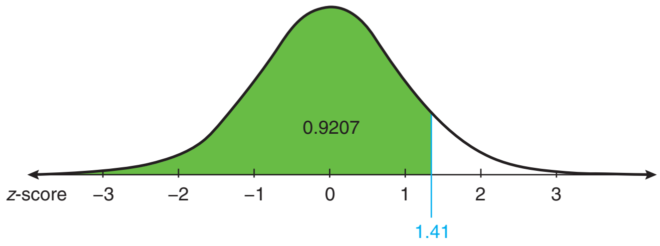
2. Determine the $z$-score above which 65% of data lies.

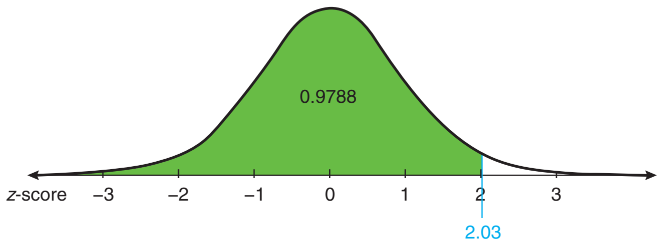
Compare your answers.

1. Determine the probability that a data value from a normal distribution will have a *z*-score between 1.41 and 2.03.

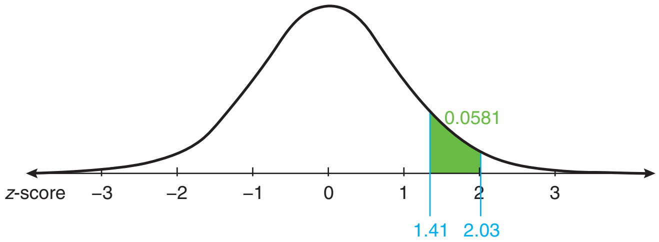
The *z*-score tables can be used to determine that the area to the left of 1.41 is 0.9207 and the area to the left of 2.03 is 0.9788.

| *z* | **0.00** | **0.01** | **0.02** | **0.03** | **0.04** | **0.05** | **0.06** | **0.07** | **0.08** | **0.09** |
|---|---|---|---|---|---|---|---|---|---|---|
| **1.4** | 0.9192 | 0.9207 | 0.9222 | 0.9236 | 0.9251 | 0.9265 | 0.9279 | 0.9292 | 0.9306 | 0.9319 |
| **1.5** | 0.9332 | 0.9345 | 0.9357 | 0.9370 | 0.9382 | 0.9394 | 0.9406 | 0.9418 | 0.9429 | 0.9441 |
| **1.6** | 0.9452 | 0.9463 | 0.9474 | 0.9484 | 0.9495 | 0.9505 | 0.9515 | 0.9525 | 0.9535 | 0.9545 |
| **1.7** | 0.9554 | 0.9564 | 0.9573 | 0.9582 | 0.9591 | 0.9599 | 0.9608 | 0.9616 | 0.9625 | 0.9633 |
| **1.8** | 0.9641 | 0.9649 | 0.9656 | 0.9664 | 0.9671 | 0.9678 | 0.9686 | 0.9693 | 0.9699 | 0.9706 |
| **1.9** | 0.9713 | 0.9719 | 0.9726 | 0.9732 | 0.9738 | 0.9744 | 0.9750 | 0.9756 | 0.9761 | 0.9767 |
| **2.0** | 0.9772 | 0.9778 | 0.9783 | **0.9788** | 0.9793 | 0.9798 | 0.9803 | 0.9808 | 0.9812 | 0.9817 |



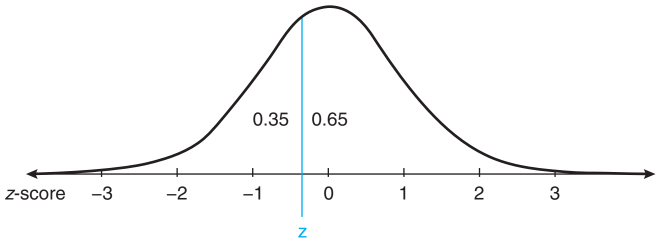

The area between these two values can be found by finding the difference between them.
$0.9788 - 0.9207 = 0.0581$




The probability tht a data value will have a *z*-score between 1.41 and 2.03 is 0.0581 or 5.81%.

2. Determine the *z*-score above which 65% of data lies.

65% of the data lies above the *z*-score, so 35% must be below (to the left) of it.




Find the value closest to 0.35 on the inside of one of the *z*-score tables to determine the *z*-score.

| *z* | 0.09 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|
| **–0.4** | 0.3121 | 0.3156 | 0.3192 | 0.3228 | 0.3264 | 0.3300 | 0.3336 | 0.3372 | 0.3409 | 0.3446 |
| **–0.3** | 0.3483 | 0.3520 | 0.3557 | 0.3594 | 0.3632 | 0.3669 | 0.3707 | 0.3745 | 0.3783 | 0.3821 |
| **–0.2** | 0.3859 | 0.3897 | 0.3936 | 0.3974 | 0.4013 | 0.4052 | 0.4090 | 0.4129 | 0.4168 | 0.4207 |

The *z*-score is –0.39.