Key

Nov. 19 Worksheet
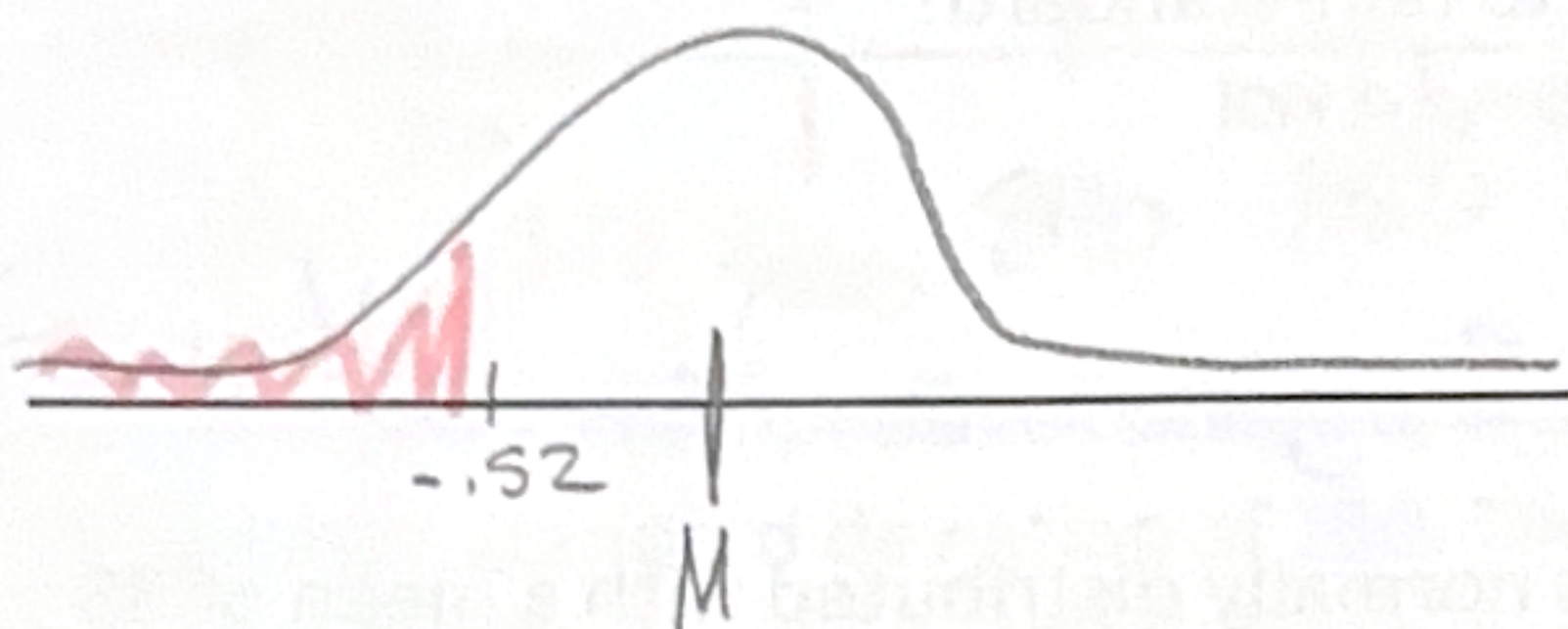
1. What do we type in Desmos to find the area of a standard normal distribution?

$$normaldist(0,1)$$

☑ cumulative probability

2. Find the area under the standard normal distribution curve to the left of z = -0.52. Round to four decimal places.

$$z \le -.52$$

.3015

-.52

M

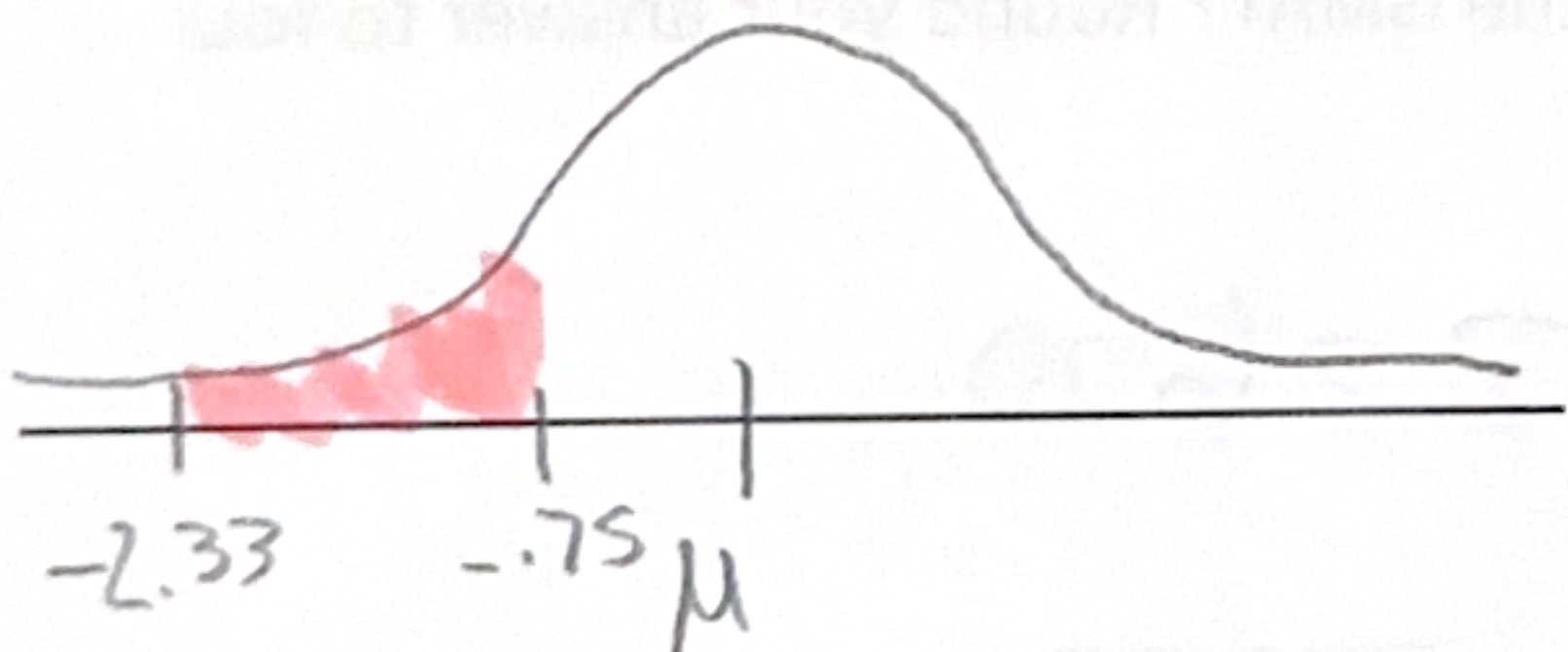3. Find the area between z = -1.50 and z = 1.00. Round to four decimal places.

$$-1.5 < z < 1$$

.7745

-1.5

M

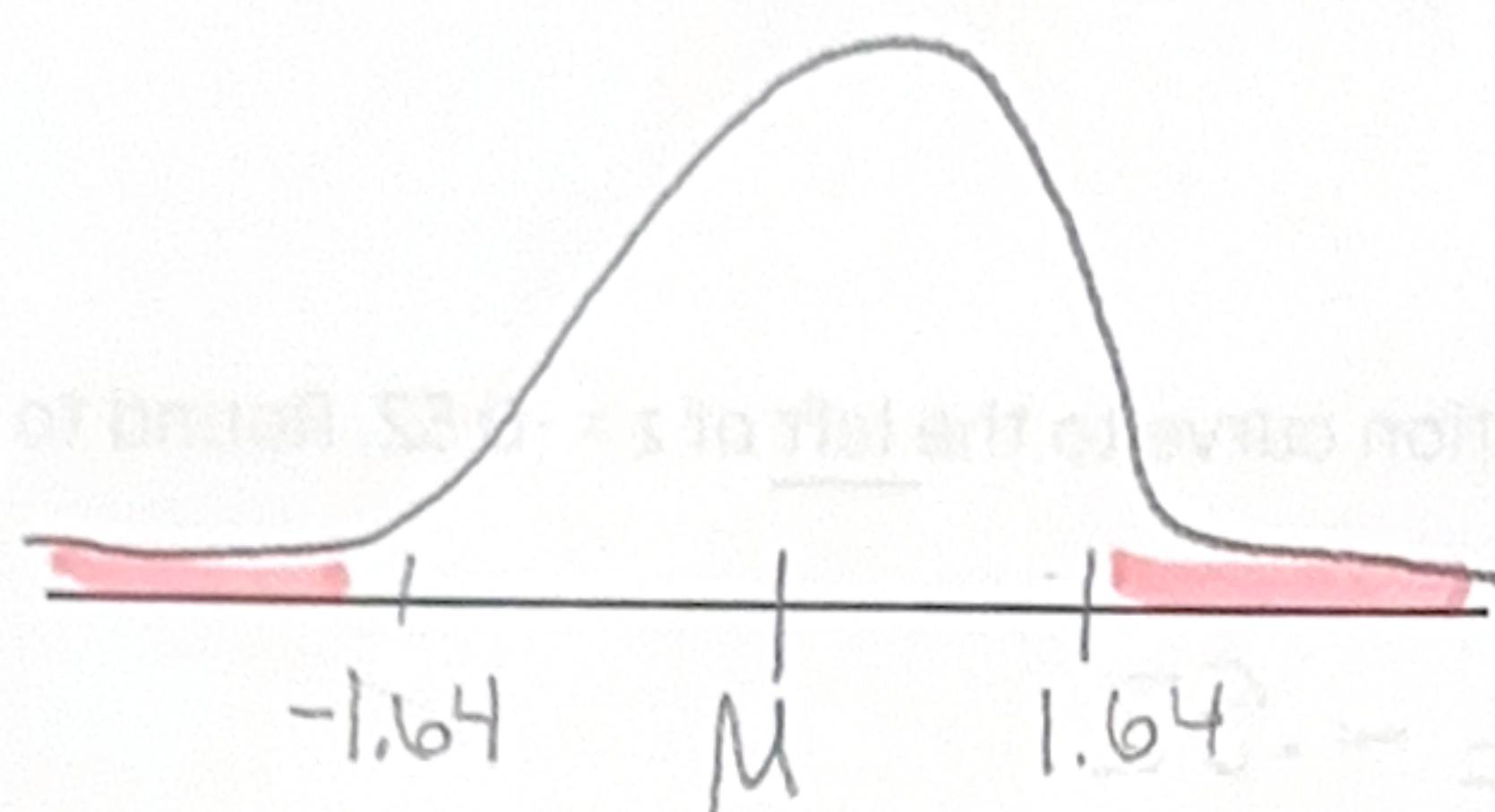4. Find the area between z = -2.33 and z = -0.75. Round to four decimal places.

$$-2.33 \le z \le -.75$$

.2167

-2.33   -.75   μ

5. Find the area to the left of z = -1.64 and to the right of z = 1.64. Round four decimal places.

$z < -1.64 \quad z > 1.64$

.0505 + .0505

$\boxed{.101}$

6. What changes from standard normal distribution to non-standard?

Mean of 0 and stdev of 1 → standard

Non-standard → not using 0 and 1, given a new $N(\mu, \sigma)$

7. The lifespan of a certain brand of smartwatches is normally distributed with a mean of 38 months and a standard deviation of 5 months. Find the probability that a randomly selected smartwatch will last between 40 months and 45 months.

$N(38,5)$
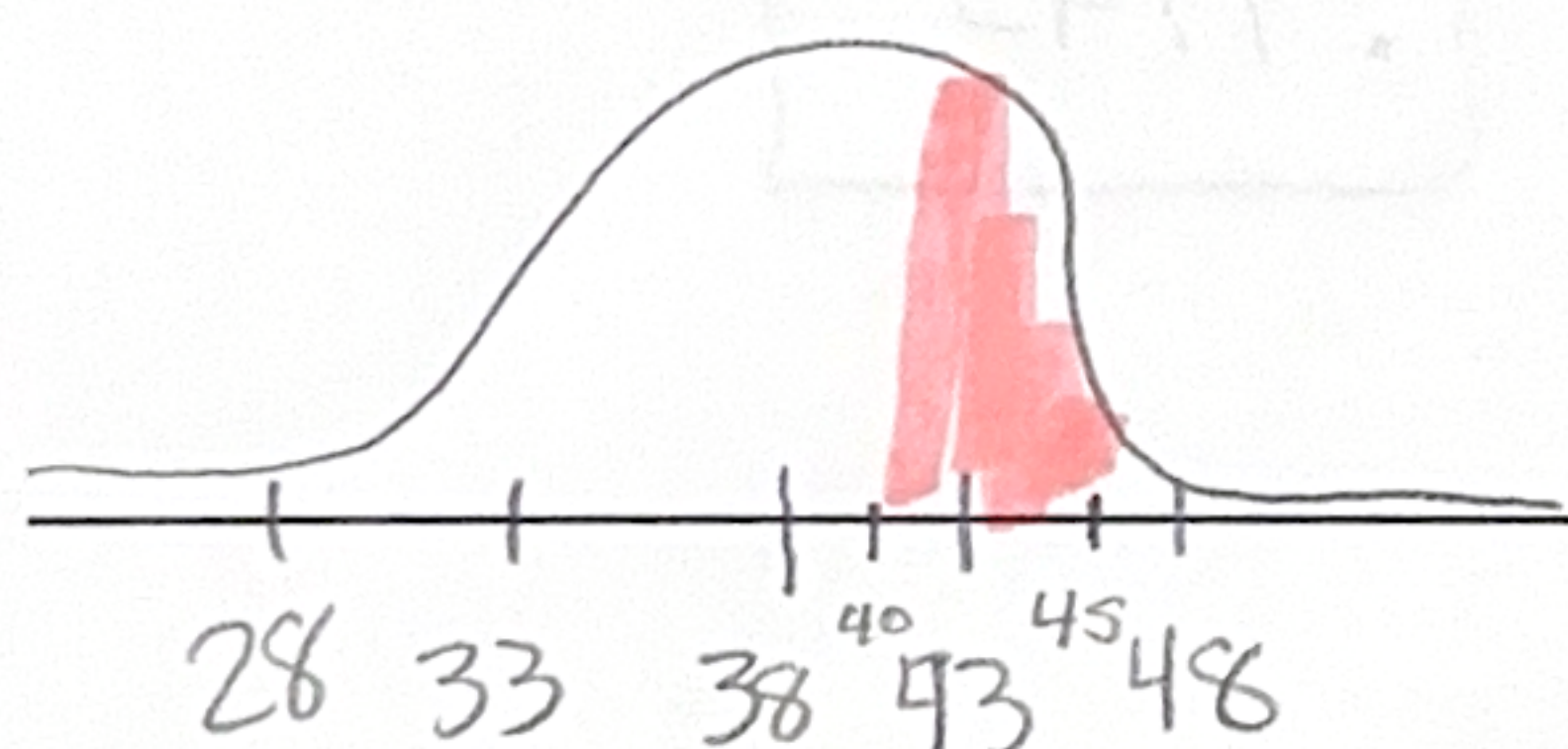
$40 < z < 45$

$\boxed{.2638}$

28 33 38 40 43 45 48

8. Scores on the Graduate Management Admission Test (GMAT), a standardized test often required for admission to graduate business schools, are roughly normally distributed. The distribution has a mean of 527 and a standard deviation of 112. What is the probability that a randomly selected individual scores above 650 on the GMAT? Round your answer to four decimal places.

$N(527, 112)$

$z > 650$

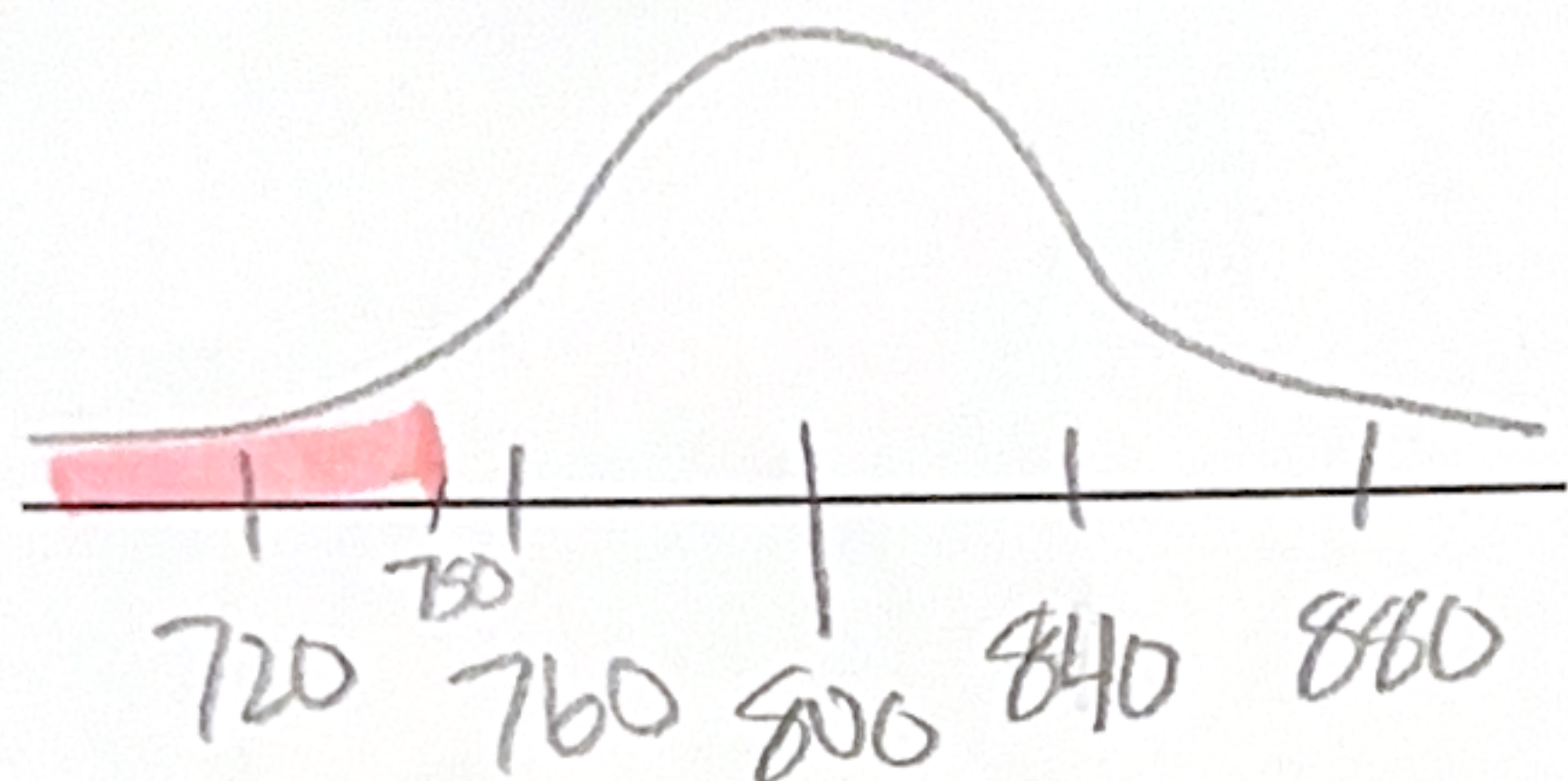$\boxed{.1361}$

303 415 527 639 751
650
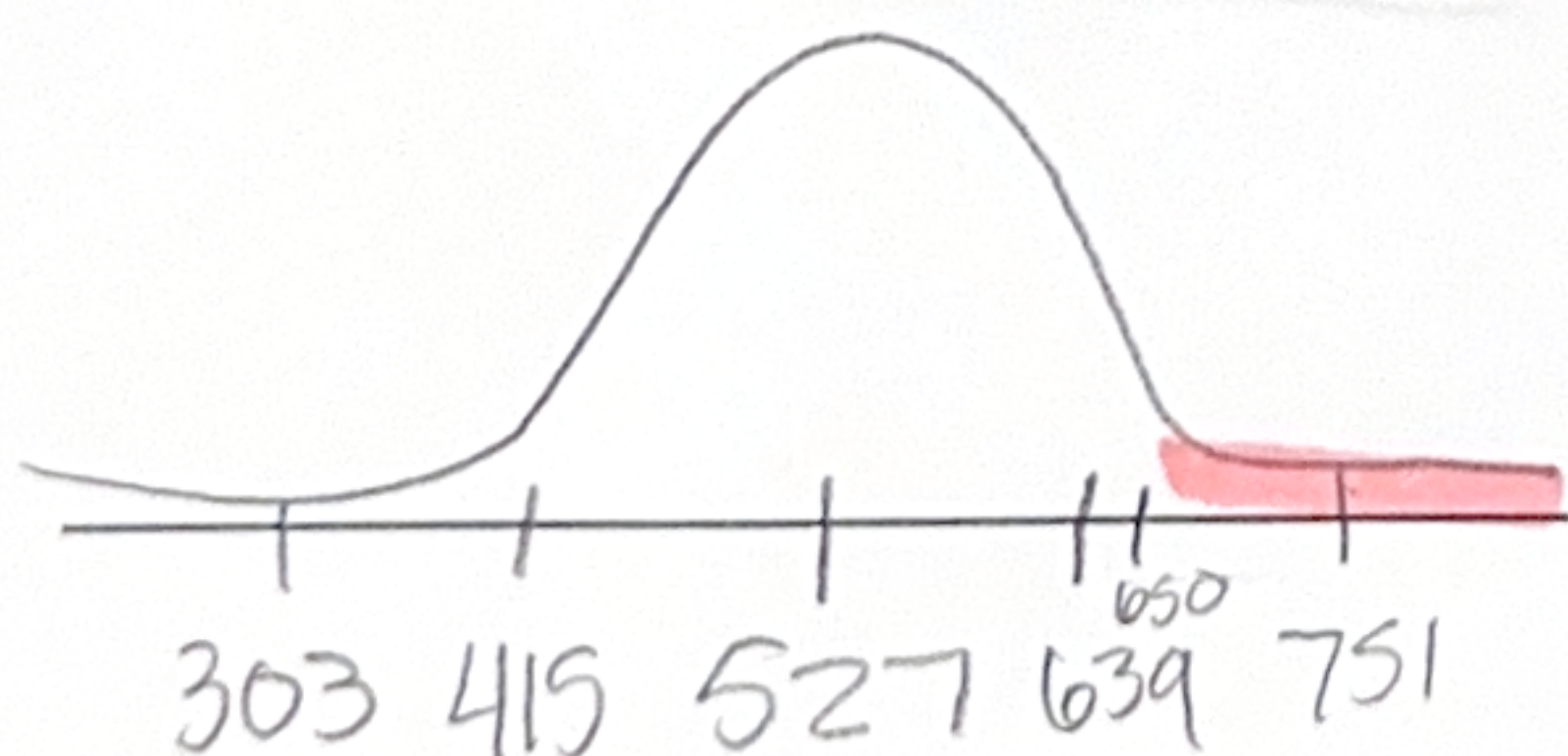
9. The lifespan of a certain model of lithium battery is normally distributed with a mean of 800 hours and a standard deviation of 40 hours. Find the probability that a randomly selected battery will last less than 750 hours. Round your answer to four decimal places.

$N(800, 40)$

$Z < 750$

. 1056

720   760   800   840   860
   750

10. Scores on a competitive college entrance exam are normally distributed with a mean of 1200 and a standard deviation of 150. The college only accepts applicants who score in the top 25% of all test-takers. What score do applicants need to be in the top 25%?

$N(1200, 150)$

1302

900   1050   1200   1350   1500