

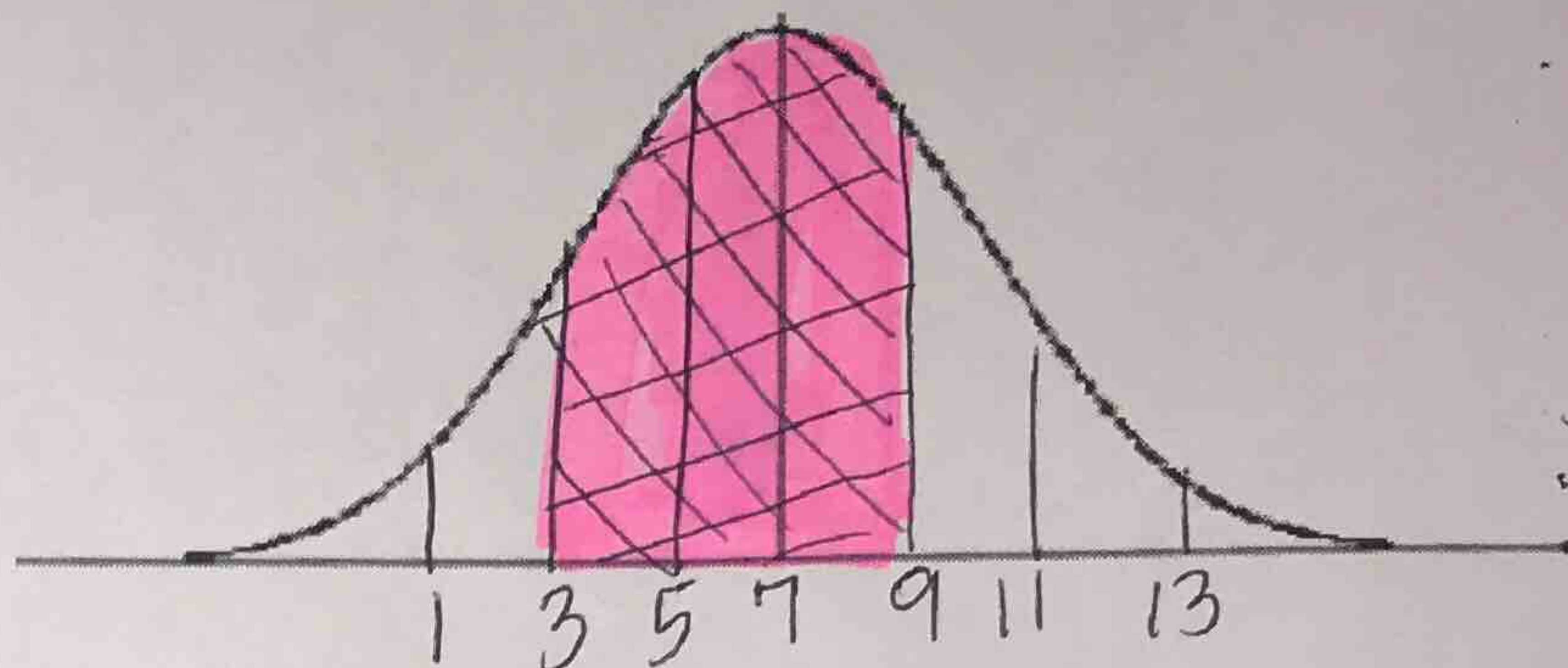
Day 02 - Properties of a Normal Distribution HW

Name Master G
 Date _____ Block _____

1-3: Draw the appropriate normal distribution graph showing three standard deviations to the left and right of the mean. Then shade the region described.

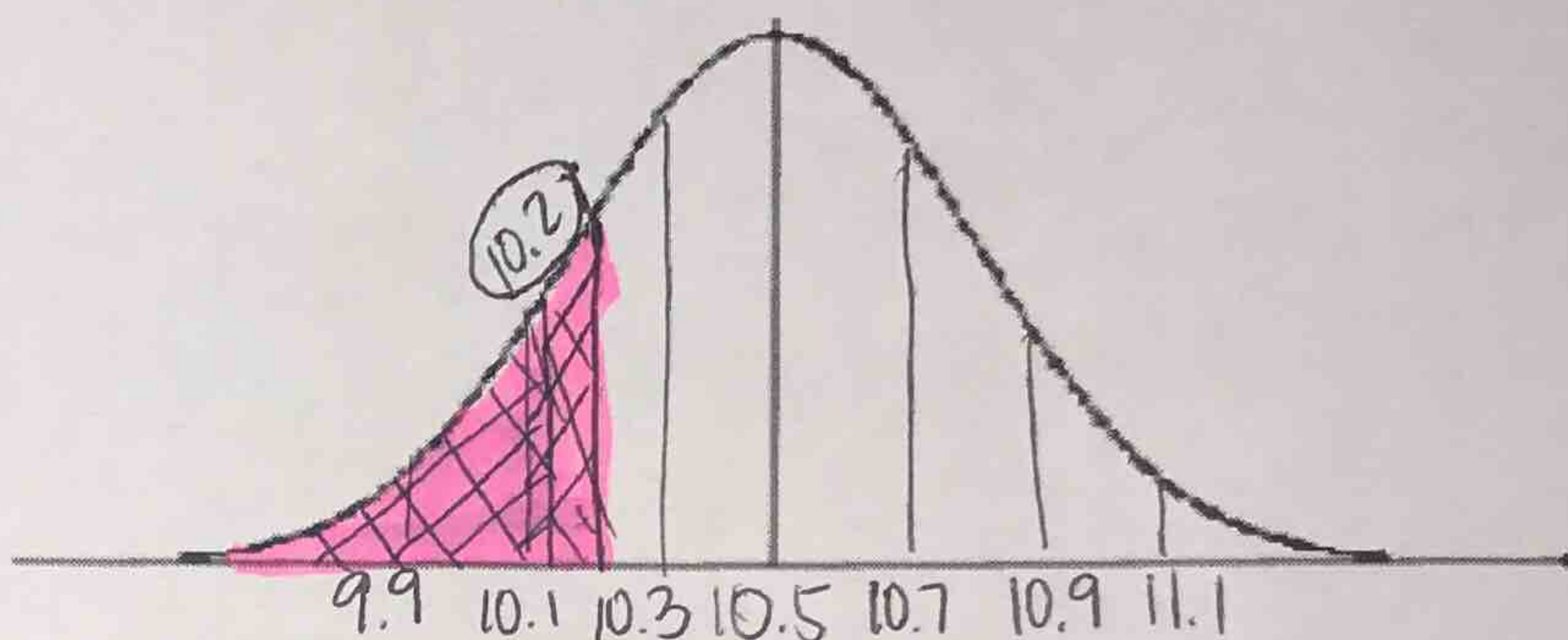
1. A normal distribution with a mean of 7 and a standard deviation of 2. Shade the area showing the probability that a randomly selected item will have a value between 3 and 9.

$$P(3 < X < 9)$$



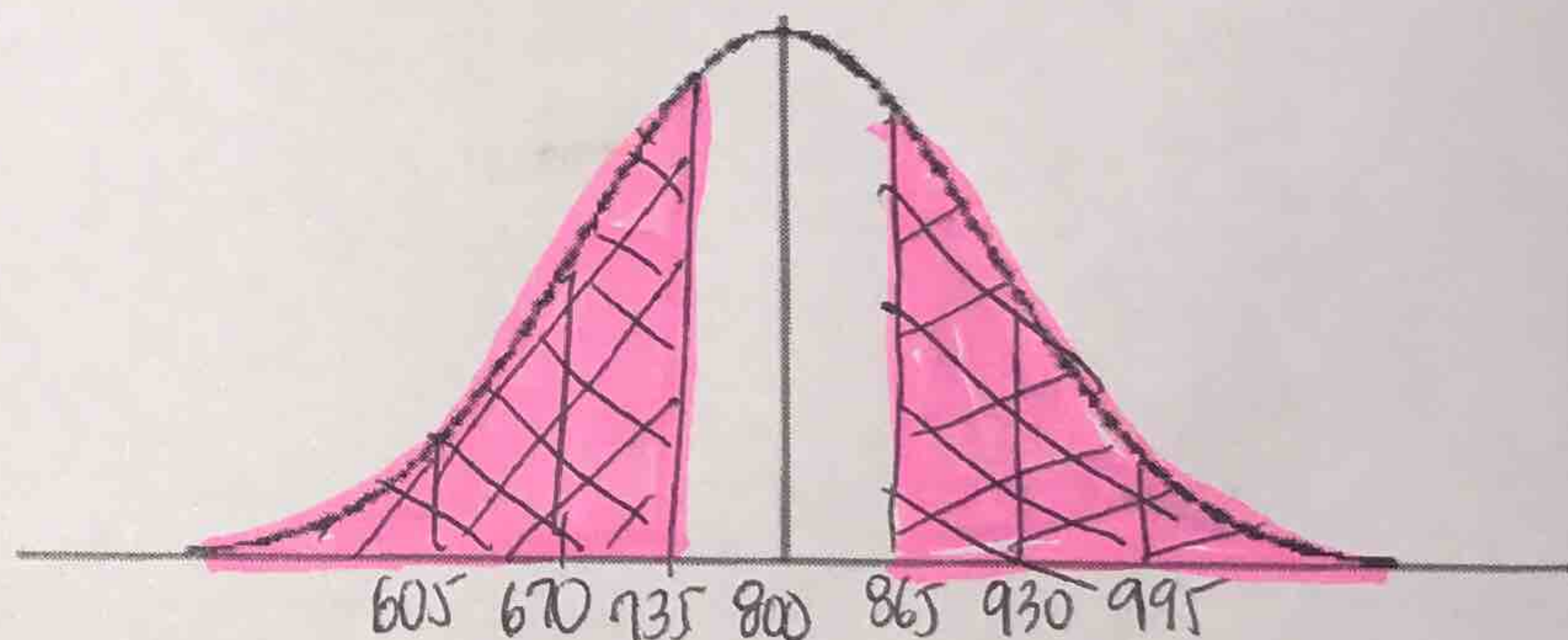
2. The weights of potato chip bags are normally distributed with weights of 10.5 oz. and a standard deviation of 0.2 oz. Shade the area showing that a randomly selected bag will have a weight less than 10.2 oz.

$$P(X < 10.2)$$



3. The weights of cattle at the fair this year were normally distributed with a mean of 800 lbs with a standard deviation of 65 lbs. Shade the area showing the probability that a randomly selected cow will have a weight less than 735 lbs or greater than 865 lbs.

$$P(X < 735 \text{ or } X > 865)$$



4-7: Use the data we found in class about teens and sleep to answer each question. Draw your scenario on the graph provided and show work when necessary. FYI: the mean (μ) is 7 and the standard deviation (σ) is 1.25.

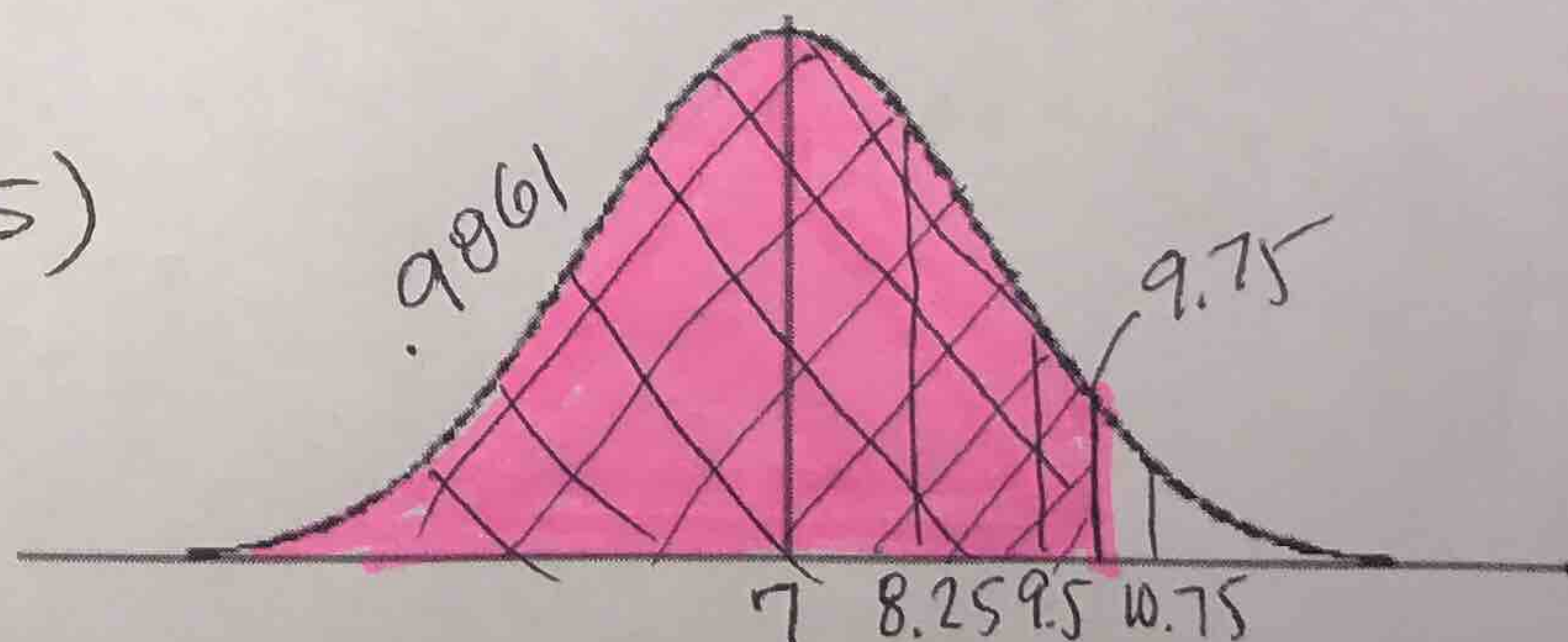
4. Before pregnancy Mrs. Lo slept an average of 9.75 hours every night. What percentage of teens slept less than Mrs. Lo?

$$z = \frac{9.75 - 7}{1.25} = \frac{2.75}{1.25} = 2.20$$

$$P(X < 9.75)$$

$$.9861 = 98.61\%$$

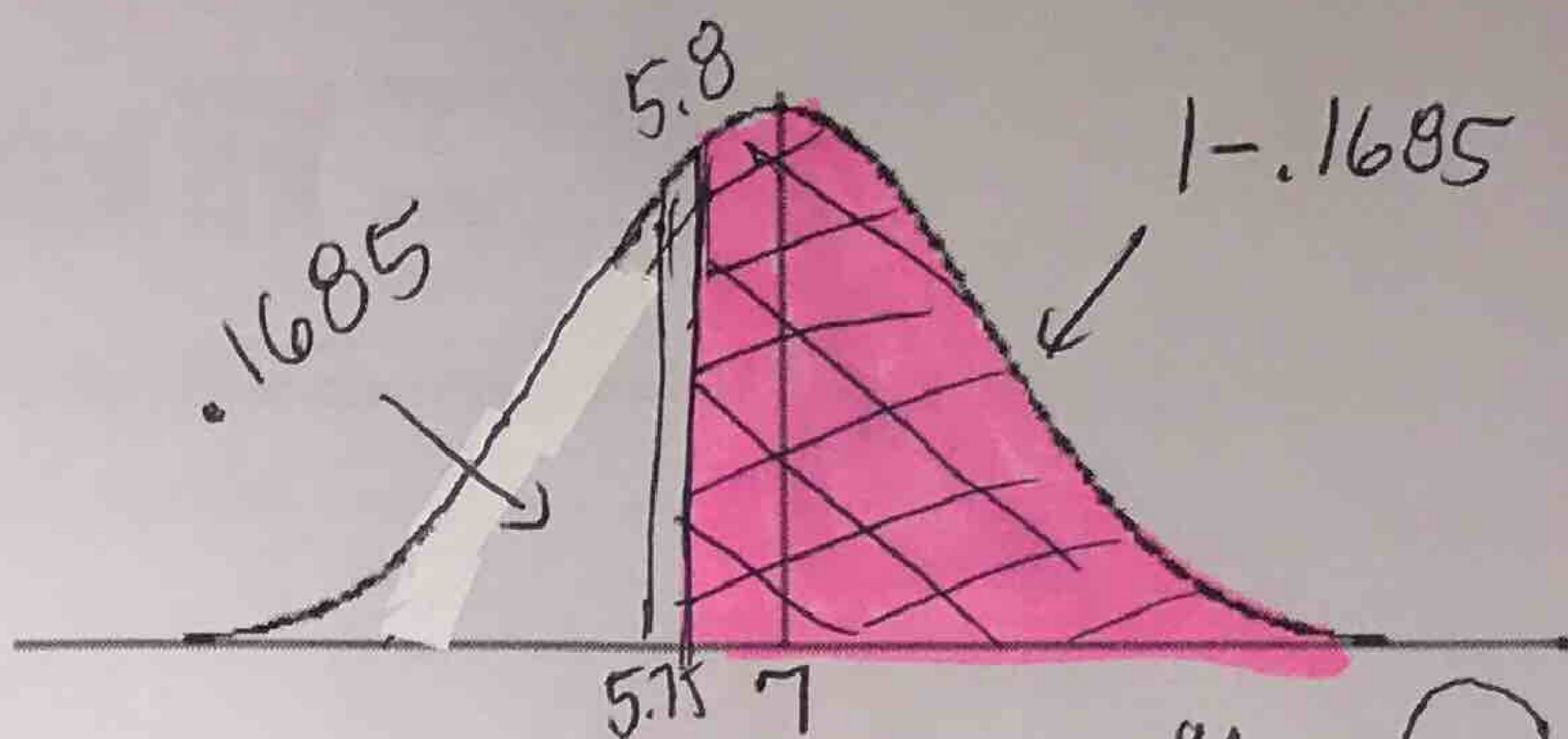
↑ PROB ↑ %



5. During pregnancy, Mrs. Lo slept on average 5.8 hours each night. What percentage of teens slept more than she did?

$$z = \frac{5.8 - 7}{1.25} = \frac{-1.2}{1.25} = -.96$$

$$1 - .1685 = .8315 = \textcircled{83.15\%}$$

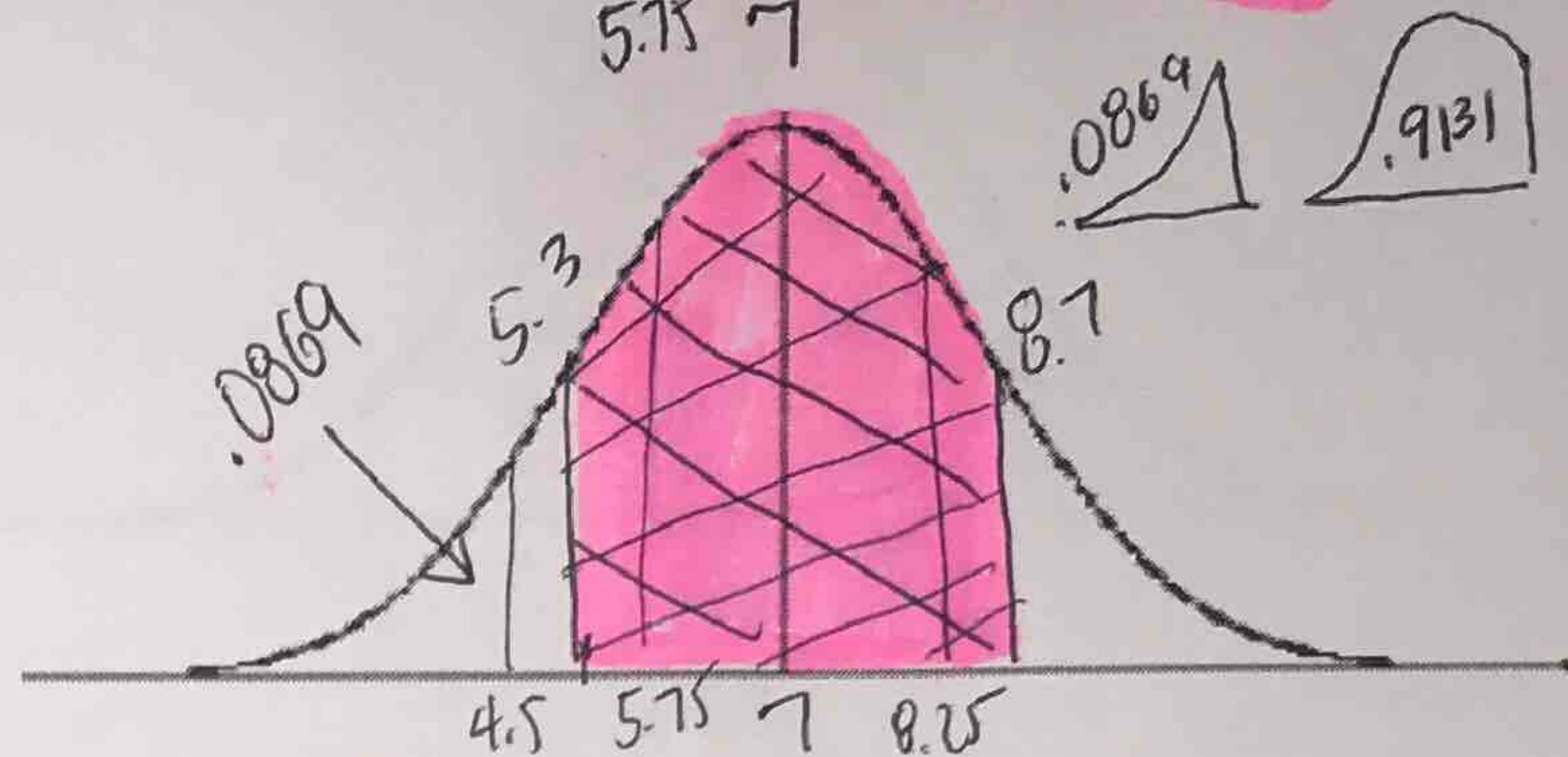


6. What percent of students slept between 5.3 hours and 8.7 hours?

$$5.3z = \frac{5.3 - 7}{1.25} = \frac{-1.7}{1.25} = -1.36 \Rightarrow .0869$$

$$8.7z = \frac{8.7 - 7}{1.25} = \frac{1.7}{1.25} = 1.36 \Rightarrow .9131$$

$$.9131 - .0869 = .8262 = \textcircled{82.62\%}$$

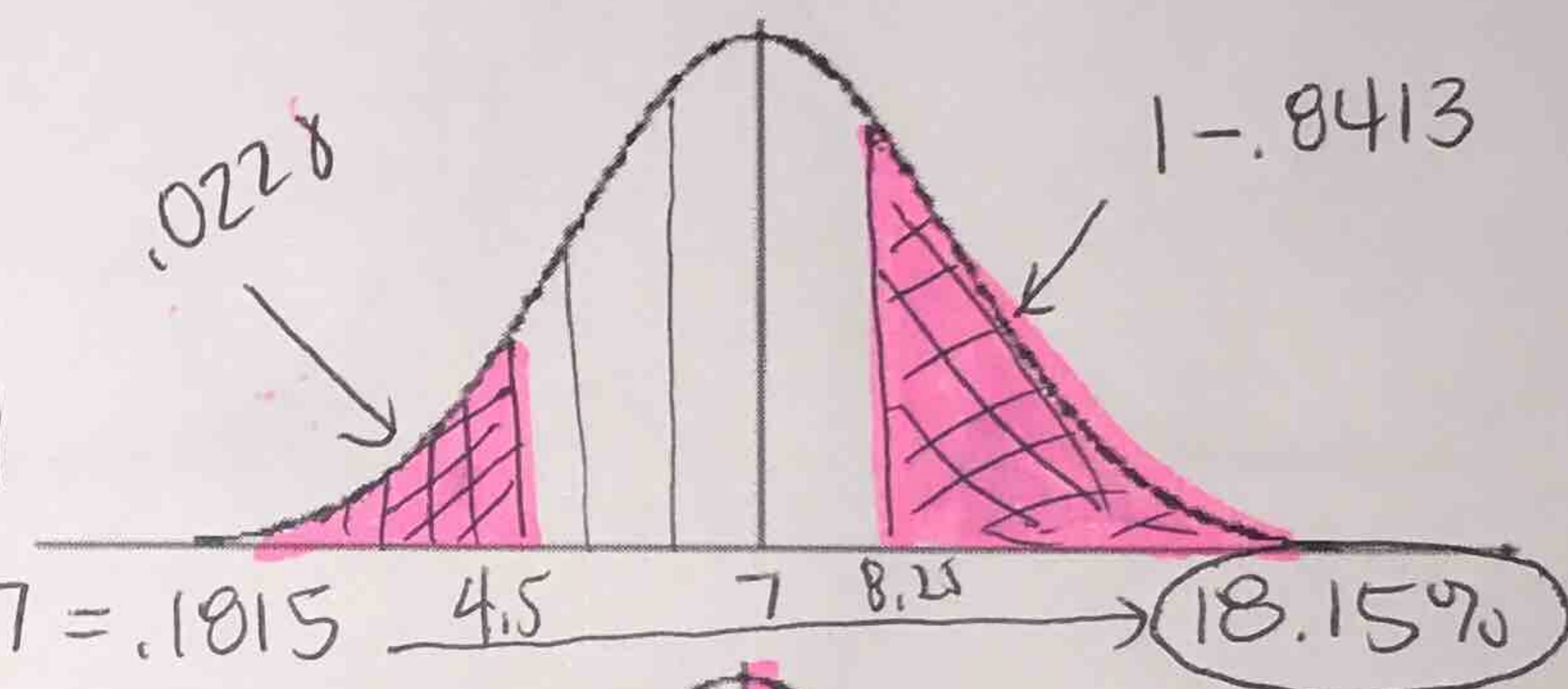


7. What percentage of students slept less than 4.5 hours or more than 8.25 hours?

$$4.5z = \frac{4.5 - 7}{1.25} = \frac{-2.5}{1.25} = -2 \Rightarrow .0228 \triangle$$

$$8.25z = \frac{8.25 - 7}{1.25} = \frac{1.25}{1.25} = 1 \Rightarrow .8413 \triangle$$

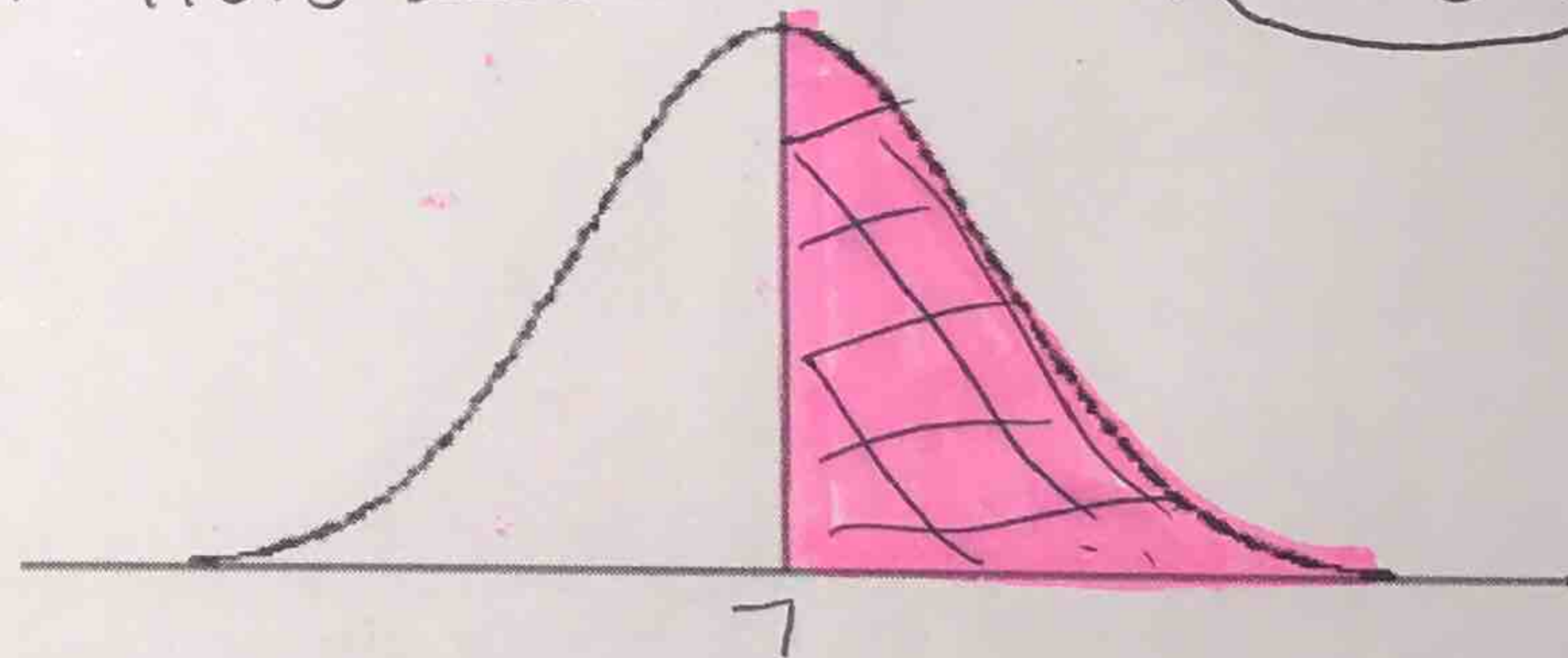
$$.0228 + (1 - .8413) = .0228 + .1587 = .1815 \rightarrow \textcircled{18.15\%}$$



8. What percentage of students slept more than 7 hours?

50% !!

$$z \text{ score} = 0 \text{ which is } .5000 = \textcircled{50\%}$$



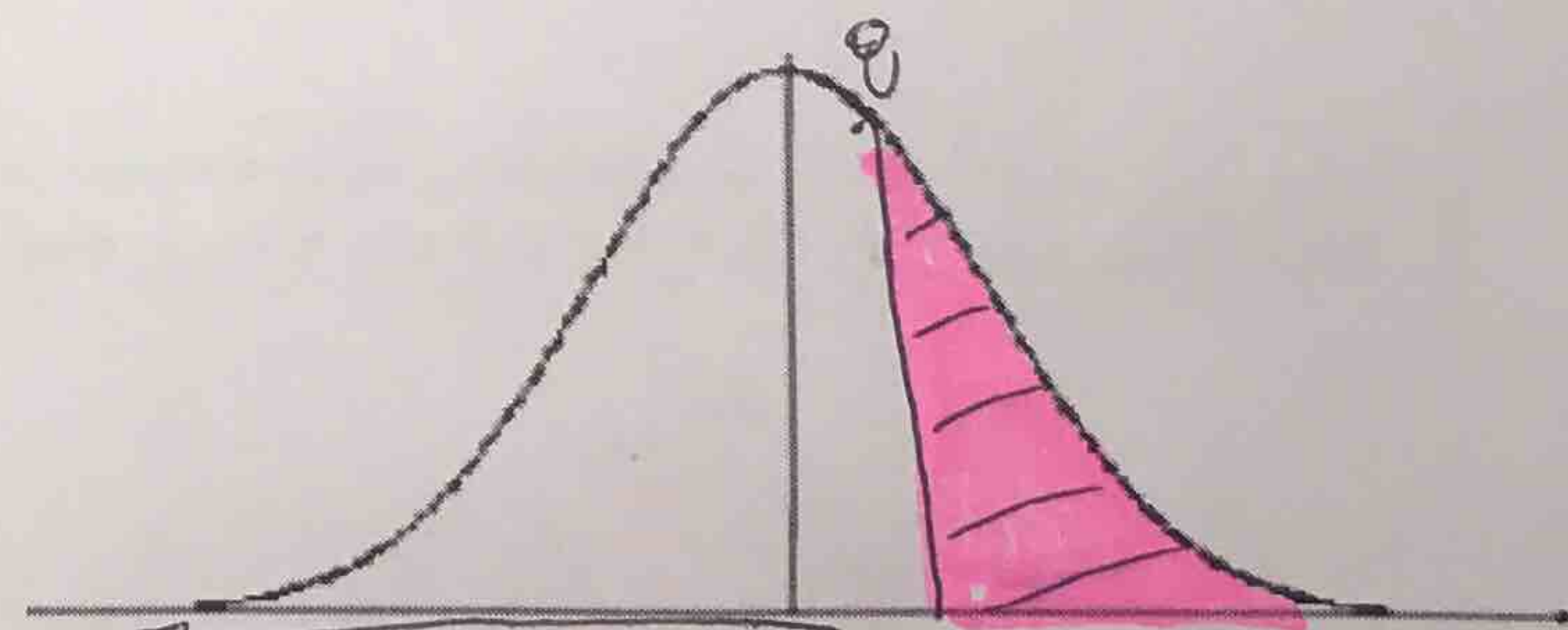
9. If 320 students were surveyed, how many teenagers slept more than 8 hours?

$$8z = \frac{8 - 7}{1.25} = \frac{1}{1.25} = .8 \Rightarrow .7881$$

$$1 - .7881 = .2119 = 21.19\%$$

$$320(.2119) = 67.808$$

$\textcircled{67 \text{ students}}$



10. What percentage of students slept less than 9.5 hours?

$$9.5z = \frac{9.5 - 7}{1.25} = 2 \Rightarrow .9772$$

$$\textcircled{97.72\%}$$

