

1.) A researcher randomly divides 50 bean plants into two groups. He puts one group by a window to receive natural light and the second group under artificial light. He records the growth of the plants weekly. Which data collection method is described in this situation?

- (A) observational study      **(B)** controlled experiment  
(C) survey                      (D) systematic sample

*controlled the amount of light*

2.) The data represents the sleeping patterns of 100 random sample subjects over a 24-hour period.

a. Find the mean.

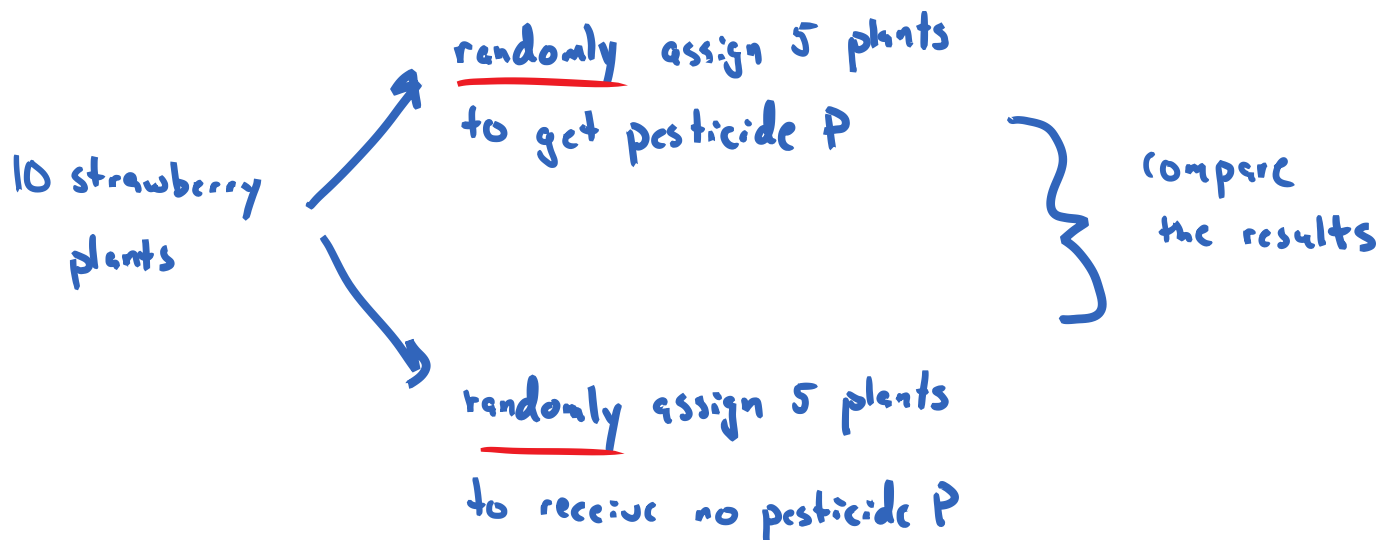
$\bar{x} = 7.95$

Hours Slept	Frequency
3.5	1
4.5	1
5.5	2
6.5	11
7.5	32
8.5	40
9.5	12
10.5	1

b. Find the standard deviation, *to the nearest hundredth*.

$\sigma_x = 1.10$

3.) Describe how a controlled experiment can be created to examine the effect of pesticide P on a strawberry plant.



4.) The weight of a bag of pears at the local market averages 8 pounds with a standard deviation of 0.5 pounds. The weights of all the bags of pears at the market closely follow a normal distribution.

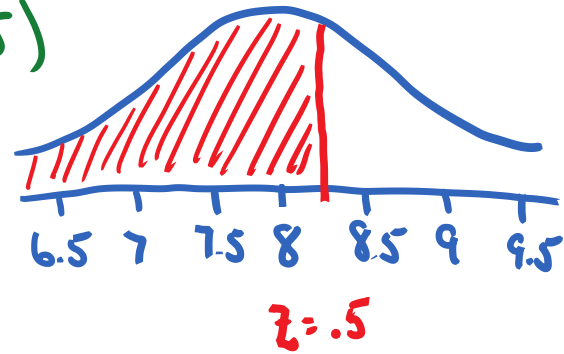
Determine what percentage of bags, to the *nearest integer*, weighed less than 8.25 pounds.

$$z = \frac{x - \bar{x}}{\sigma}$$

$$z = \frac{8.25 - 8}{.5} = .5$$

normcdf(-99, .5)

69%



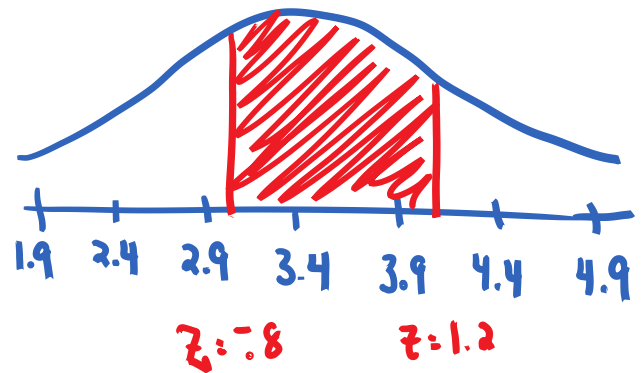
5.) An electronic product takes an average of 3.4 hours to move through an assembly line, with a standard deviation of 0.5. If the distribution is normal, what is the probability that an item will take between 3 and 4 hours?

- (A) 0.2119
- (B) 0.2295
- (C) 0.3270
- (D) 0.3811
- (E) 0.6730

$$z = \frac{3 - 3.4}{.5} = -.8$$

$$z = \frac{4 - 3.4}{.5} = 1.2$$

normcdf(-.8, 1.2)



6.) The scores on a mathematics college-entry exam are normally distributed with a mean of 68 and standard deviation 7.2. Students scoring higher than one standard deviation above the mean will not be enrolled in the mathematics tutoring program. How many of the 750 incoming students can be expected to be enrolled in the tutoring program?

- (A) 631
- (B) 512
- (C) 238
- (D) 119

normcdf(-99, 1)

z=1

.8413

$$750(.8413) = 631$$

