

1. Randomly place the numbers from 1 to 30 in the squares at the bottom of the page (this represents 30% of the population). Then complete the tables below by counting the number of salamanders in each square and placing it next to the corresponding number. (9 Marks)

Sample	# of salamaners
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Total	

Sample	# of salamaners
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
Total	

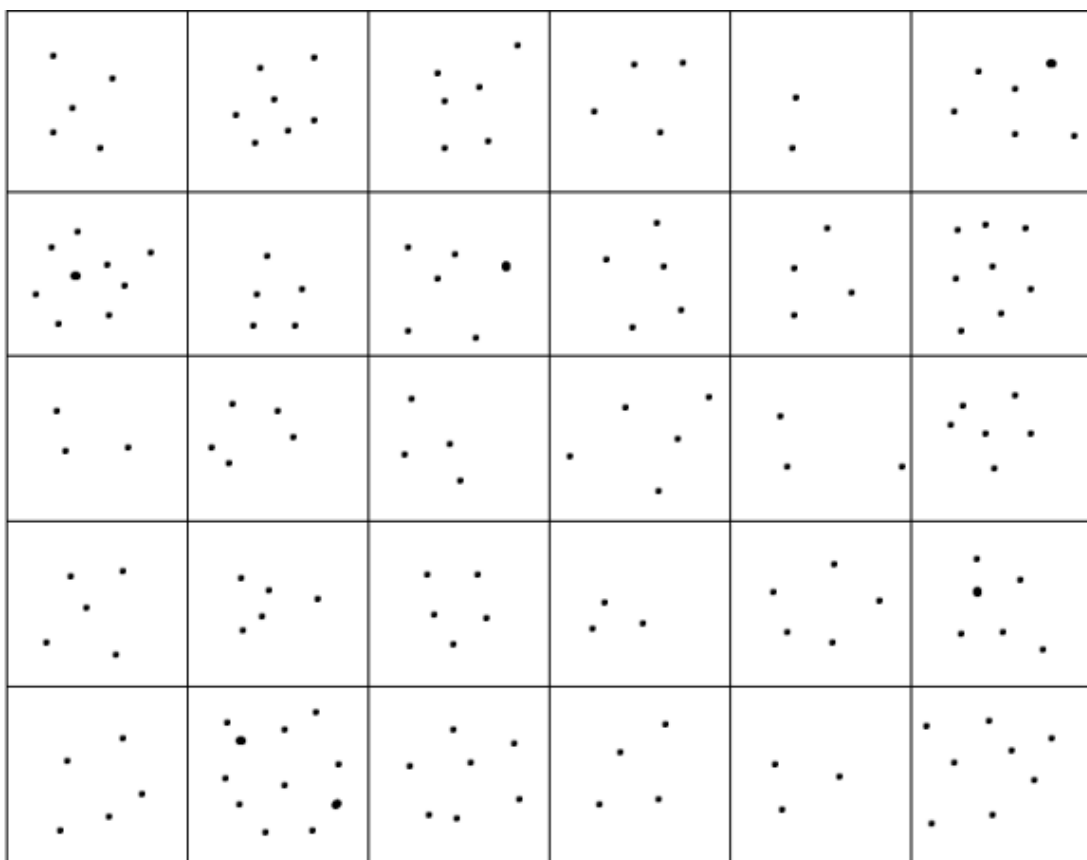
Sample	# of salamaners
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
Total	

2. Since the first ten samples taken was 10% of the population, how many salamanders would be in 100% of the population  
 \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_ (Hint 10% x 10 = 100%) (1 Mark)
3. All three of the tables represent 30% of the population. Your **total salamanders** from the three tables is \_\_\_+\_\_\_+\_\_\_ = \_\_\_ (1 Mark)  
 Based on your 30% sample size what would be a good estimate for the population of salamanders? \_\_\_\_\_  
 (Hint 30% x 3.33 = 100%). (1 Marks)

**Analysis**

4. If the true population size of salamanders was 540, which sample 10% or 30% was more accurarate? \_\_\_\_\_ (1 Mark)
5. Why do biologist use sampling instead of counting all of the individuals in a population?  
 \_\_\_\_\_  
 \_\_\_\_\_ (1 Mark)
6. Was this sampling method effective in estimating the total population of salamanders? \_\_\_\_\_ (1 Mark)
7. What are 3 types of organisms that this sampling will work for? \_\_\_\_\_ (2 Marks)
8. What is one organism that this sampling will **NOT** work for? \_\_\_\_\_ Why wont it? (1 Mark)

(2 Marks)OVER →



9. What is the population density of the salamanders I sampled?  
To do this you need to calculate the amount of salamanders over the total area.

The number of **total salamanders** from the first part of question #3. \_\_\_\_\_  
Each square represented **10m<sup>2</sup>** so the area of my sample is **10m<sup>2</sup> x 30** = \_\_\_\_\_ m<sup>2</sup>

To calculate use the following formula

$$\text{Estimated Population Density} = \frac{\text{total number of individuals (salamanders)}}{\text{Sampling area}}$$

$$\text{Estimated Population Density} = \frac{\text{salamanders}}{\text{m}^2}$$

$$\text{Estimated Population Density} = \text{_____ salamanders/m}^2 \quad (4 \text{ Marks})$$

10. If you were asked to estimate the population of salamanders in a 10,000 m<sup>2</sup> area, what would be your estimate?

$$\text{_____ salamanders/m}^2 \times \text{_____ m}^2 = \text{_____ salamanders (1 Mark)}$$