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| Online Homework Package Created by : Elsit and Satya Mandal | | |
| Course Id :Math 105 | Topics in Mathematics | Semester : Summer2017 |
| Instructor :Satya Mandal Line No : 84895 | | |
| Homework No: 20 | Total Points :50 | Due Date:(YYYY-MM-DD) 2017-07-27 |

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| Question-1 | The tuition X paid per semester by students in a university has a distribution with mean $\mu = \$4500$ and standard deviation $\sigma = \$900$. If 550 students are interviewed, what is the approximate probability that the sample mean tuition \bar{X} paid will be above \$4450? |
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| Answer Question-1 | This is a Numerical-Answer Type Question $P(4450 < \bar{X}) =$ |
| Points | 5.00 |

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| Question-2 | The annual rainfall X in a region has a distribution with mean $\mu = 24$ cm and standard deviation $\sigma = 10$ cm. What is the probability that over the next 100 years the mean \bar{X} annual rainfall will be less than 24.5 cm? |
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| Answer Question-2 | This is a Numerical-Answer Type Question $P(\bar{X} < 24.5) =$ |
| Points | 5.00 |

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| Question-3 | The amount X of ice cream in an ice-cream cone has mean $\mu = 5$ ounce and standard deviation $\sigma = 0.5$ ounces. If there are 64 children at a birthday party, what is the approximate probability that the mean consumption \bar{X} will be less than 5.05 ounce? |
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| Answer Question-3 | This is a Numerical-Answer Type Question $P(\bar{X} < 5.05) =$ |
| Points | 5.00 |

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| Question-4 | A cigarette manufacturer claims that the mean nicotine content in a cigarette is $\mu = 3.5$ mg with the standard deviation $\sigma = 0.5$ mg. If this claim is valid, what is the approximate probability that a sample of $n = 900$ cigarettes will have a sample mean \bar{X} nicotine content more than 3.52 mg? |
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| Answer Question-4 | This is a Numerical-Answer Type Question $P(3.52 < \bar{X}) =$ |
| Points | 5.00 |

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| Question-5 | The mean annual salary in a local industry has mean $\mu = \$90,000$ and the standard deviation $\sigma = \$20,000$. You collect a sample of size 300 employees. What is the probability that the mean salary will exceed \$89,500? |
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| Answer Question-5 | This is a Numerical-Answer Type Question $P(89500 < \bar{X}) =$ |
| Points | 5.00 |

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| Question-6 | The members of a family share cell phone time. The mean length of the calls is mean 28 minutes and standard deviation is 18 minutes. The family made 98 calls. What is the (approximate) probability that the mean time used would be less 3000/98 minutes? |
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| Answer Question-6 | This is a Numerical-Answer Type Question $P(\bar{X} < 3000/98) =$ |
| Points | 5.00 |

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| Question-7 | The weight X of salmon caught in a river is has mean $\mu = 24$ pounds and standard deviation $\sigma = 8$ pounds. If you catch 36 fish, what is the approximate probability that the mean weight of fish caught will exceed 25 pounds? (Use CLT.) |
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| Answer Question-7 | This is a Numerical-Answer Type Question $P(25 < \bar{X}) =$ |
| Points | 5.00 |

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| Question-8 | During the rainy season, in a region, the mean weekly rainfall is 10 inches and standard deviation 4.4 inches. What is the probability that average rainfall during the remaining 12 weeks of the season would exceed 130/12 inches? (Use CLT.) |
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| Answer Question-8 | This is a Numerical-Answer Type Question $P(130/12 < \bar{X}) =$ |
| Points | 5.00 |

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| Question-9 | The mean time a real-estate agent spend showing a house is 55 minutes and standard deviation is 22 minutes. An agent showed 33 houses in a week. What is the (approximate) probability that the agent would have spent, on an average, less than $1800/33$ minutes showing houses? |
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| Answer Question-9 | This is a Numerical-Answer Type Question $P(\bar{X} < 1800/33) =$ |
| Points | 5.00 |

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| Question-10 | The mean time taken by a school student to complete a homework problem is 220 seconds and standard deviation 100 seconds. A homework assignment has 30 problems. What (approximate) proportion of students would spend more than an average of of 200 seconds? |
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| Answer Question-10 | This is a Numerical-Answer Type Question $P(200 < \bar{X}) =$ |
| Points | 5.00 |

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