

East Los Angeles College
Department of Mathematics
Math 227
Test 2

Solutions

Show work for credit and approximate all answers to the nearest ten thousandths where applicable.

Computer Purchases- Of 800 purchases made at ELAC 336 were desktop computers, 398 were laptop computers, and 66 were printers. As part of an audit, a purchase order was selected at random. What's the probability that the purchase order was: **Approximate answers to the nearest thousandths**

- 1) A printer?
- 2) A desktop?
- 3) A non-printer?
- 4) A non-desktop?
- 5) Laptop and a desktop?
- 6) Laptop or a desktop?

Standard Deck- A card is selected at random. Assuming the Ace is high, what's the probability of selecting: **Leave answers as fractions.**

- 7) King?
- 8) Non King?
- 9) Club?
- 10) Non Club?
- 11) King and a club?
- 12) King or a club?
- 13) Card that is at least a 10?
- 14) Red card that is at least a 10?

Gender and Pet Preference- Does gender affect the type of pet you own? The following table lists the results.

Gender	Cats	Dogs	Other Pets	Total
Female	100	50	30	180
Male	50	50	20	120
Total	150	100	50	300

If you select a person at random, that's the probability the person: **Approximate to the nearest hundredths.**

- 15) Prefers a cat?
- 16) Prefers a dog?
- 17) Prefers a cat or a dog?
- 18) Prefers a dog given that the person is a male?
- 19) Prefers a dog given that the person is a female?
- 20) Prefers a cat given that the person is a male?
- 21) Prefers a cat given that the person is a female?
- 22) Which gender prefers a dog?
- 23) Which gender prefers a cat?

Use the sample of Test Scores to answer the following questions.

Test Scores	Locator	Sorted Test Scores
58	1	45
120	2	58
100	3	60
85	4	60
60	5	60
45	6	83
83	7	85
100	8	85
108	9	85
100	10	88
90	11	90
150	12	90
88	13	90
140	14	100
135	15	100
120	16	100
118	17	100
85	18	105
60	19	108
150	20	108
120	21	110
100	22	118
90	23	120
85	24	120
105	25	120
60	26	120
120	27	135
90	28	140
108	29	150
110	30	150

Mean 99.43
SD 26.90

- 24) Determine the 1st Quartile.
- 25) Determine the 2nd Quartile.
- 26) Determine the 3rd Quartile.
- 27) Determine the 1st Decile.
- 28) Determine the 9th Decile.
- 29) Determine the 65th percentile.
- 30) What is your name?

Use the sample of Test Scores to fill in the following table. Approximate the z score to the **nearest hundredths**

Student	Test Score	Z score	Standard Grade	Curved Grade
Amy	135	1.32 ✓	A ✓	B ✓
Frank	120	0.76 ✓	B ✓	C ✓
Jimbo	100	0.02 ✓	C ✓	C ✓
Sara	85	-0.54 ✓	F ✓	C ✓
Anne	45	-2.02 ✓	F ✓	F ✓

Test Score	Standard Grade
150 to 135	A
134 to 120	B
119 to 105	C
104 to 90	D
89 to 0	F

$$z = \frac{x - 99.43}{26.9}$$

90 ✓

Answer Sheet

1	0.093 /	16	0.33 /
2	0.42 /	17	0.83 /
3	0.917 /	18	0.42 /
4	0.58 /	19	0.28 /
5	0 /	20	0.42 /
6	0.918 /	21	0.56 /
7	$\frac{1}{13}$ /	22	male /
8	$\frac{12}{13}$ /	23	female /
9	$\frac{1}{4}$ /	24	$L \approx 8$ 85 /
10	$\frac{3}{4}$ /	25	$L = 5$ 100 /
11	$\frac{1}{52}$ /	26	$L \approx 23$ 120 /
12	$\frac{4}{13}$ /	27	$L \approx 3$ 60 /
13	$\frac{4}{13}$ /	28	$L \approx 27$ 137.5 /
14	$\frac{2}{13}$ /	29	$L \approx 20$ 108 /
15	0.5 /	30	

math 227 Test 2

$$(1) p(\text{print}) = \frac{n(\text{print})}{n(s)}$$

$$= \frac{66}{800} \approx \underline{0.083}$$

$$(2) p(\text{Desk}) = \frac{n(\text{Desk})}{n(s)}$$

$$= \frac{336}{800} \approx \underline{0.42}$$

$$(3) p(\text{non print}) = 1 - p(\text{print})$$

$$= 1 - 0.083$$

$$\approx \underline{0.917}$$

$$(4) p(\text{non Desk}) = 1 - p(\text{Desk})$$

$$= 1 - 0.42$$

$$= \underline{0.58}$$

$$(5) p(\text{lap and Desk}) = \frac{n(\text{lap and Desk})}{n(s)}$$

$$= \frac{0}{800} = \underline{0}$$

$$(6) p(\text{Lap or Dest})$$

$$= p(\text{Lap}) + p(\text{Dest}) - \overset{0}{p(\text{Both})}$$

$$= \frac{398}{800} + \frac{336}{800} - 0$$

$$= \frac{734}{800} \approx \underline{0.918}$$

$$(7) p(k) = \frac{n(k)}{n(s)} ; p(k) = \frac{4}{52} = \underline{\underline{\left[\frac{1}{13} \right]}}$$

$$(8) p(\text{non } k) = 1 - p(k)$$

$$= 1 - \frac{1}{13} = \frac{13}{13} - \frac{1}{13} = \underline{\underline{\left[\frac{12}{13} \right]}}$$

$$(9) p(c) = \frac{n(c)}{n(s)} ; p(c) = \frac{13}{52} = \underline{\underline{\left[\frac{1}{4} \right]}}$$

$$(10) p(\text{non } c) = 1 - p(c)$$

$$= 1 - \frac{1}{4} = \frac{4}{4} - \frac{1}{4} = \underline{\underline{\left[\frac{3}{4} \right]}}$$

$$(11) p(k \text{ and } c) = \frac{n(k \text{ and } c)}{n(s)}$$

$$= \underline{\underline{\left[\frac{1}{52} \right]}}$$

$$(12) \quad p(k \text{ or } c) = p(k) + p(c) - p(\text{both})$$

$$= \frac{4}{52} + \frac{13}{52} - \frac{1}{52}$$

$$= \frac{4+13-1}{52} = \frac{16}{52}$$

$$= \frac{8}{26} = \boxed{\frac{4}{13}}$$

$$(13) \quad p(\text{card} \geq 10) = \frac{n(\text{card} \geq 10)}{n(s)}$$

ace is high

$$= \frac{16}{52} = \frac{8}{26} = \boxed{\frac{4}{13}}$$

$$(14) \quad p(\text{Red card} \geq 10) = \frac{8}{52}$$

ace is high

$$= \frac{4}{26} = \boxed{\frac{2}{13}}$$

$$(15) \quad p(\text{cat}) = \frac{n(\text{cat})}{n(s)}$$

$$= \frac{150}{300} = \boxed{0.5}$$

$$(16) \quad p(\text{Dog}) = \frac{n(\text{Dog})}{n(s)}$$

$$= \frac{100}{300} \approx \boxed{0.33}$$

$$(17) P(\text{cat or Dog})$$

$$= P(\text{cat}) + P(\text{Dog}) - P(\text{both})$$

$$= \frac{150}{300} + \frac{100}{300} - \frac{0}{300}$$

$$= \frac{250}{300} \approx \underline{0.83}$$

$$(18) P(\text{dog} | \text{male}) = \frac{n(\text{Dog and male})}{n(\text{male})}$$

$$= \frac{50}{120}$$

$$\approx \underline{0.42}$$

$$(19) P(\text{dog} | \text{female}) = \frac{n(\text{dog and female})}{n(\text{female})}$$

$$= \frac{50}{150}$$

$$\approx \underline{0.33}$$

$$(20) P(\text{cat} | \text{male}) = \frac{n(\text{cat and male})}{n(\text{male})}$$

$$= \frac{50}{120} \approx \underline{0.42}$$

$$\begin{aligned}
 (21) \quad p(\text{cat} | \text{female}) &= \frac{n(\text{cat and female})}{n(\text{female})} \\
 &= \frac{100}{180} \\
 &\approx \underline{\underline{0.56}}
 \end{aligned}$$

(22) male (23) female

$$(24) \quad Q_1 = P_{25}$$

$$L = \frac{25}{100} \cdot 30 = 7.5 \approx 8$$

$$Q_1 = \underline{\underline{85}}$$

$$(25) \quad Q_2 = P_{50}$$

$$L = \frac{50}{100} \cdot 30 = 15 ;$$

$$Q_2 = \frac{100 + 100}{2} ; \quad \underline{\underline{Q_2 = 100}}$$

$$(26) \quad Q_3 = P_{75}$$

$$L = \frac{75}{100} \cdot 30 = 22.5 \approx 23$$

$$\underline{\underline{Q_3 = 120}}$$

$$(27) D_1 = P_{10}$$

$$L = \frac{10}{100} \cdot 30 = 3$$

$$D_1 = \frac{60 + 60}{2} ; \boxed{D_1 = 60}$$

$$(28) D_a = P_{90}$$

$$L = \frac{90}{100} \cdot 30 = 27$$

$$D_a = \frac{135 + 140}{2} ; \boxed{D_a = 137.5}$$

$$(29) P_{65}$$

$$L = \frac{65}{100} \cdot 30 ; L = 19.5 \approx 20$$

$$\boxed{P_{65} = 108}$$

(30) Solutions