



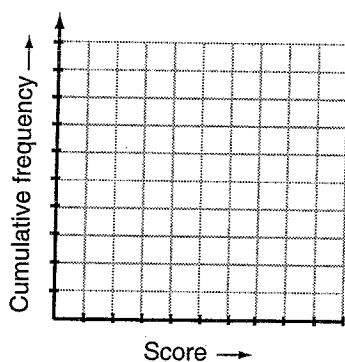
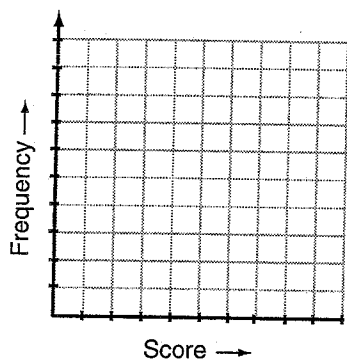
UNIT 5: Tabulation of statistical data and cumulative frequency

QUESTION 1 A survey involving the test results obtained by a class of 30 students is given:

5	9	7	7	5
6	7	6	7	8
6	6	6	8	9
10	6	7	8	6
5	4	3	6	7
9	8	9	7	9

- Complete the frequency distribution table.
- Draw a frequency histogram.
- Draw a frequency polygon.
- Draw a cumulative frequency histogram.
- Draw a cumulative frequency polygon.

Score (x)	Tally	Frequency (f)	Cumulative frequency
3			
4			
5			
6			
7			
8			
9			
10			
			$\Sigma f = 30$



QUESTION 2 A class of 20 students scored the following marks (out of 10) in a class test:

5	0	7	6	7
2	3	5	3	5
10	8	7	6	3
4	7	10	7	2

- Complete the frequency table.

For this distribution calculate:

- the mean mark.
- the mode.
- the range.
- the median.

Score (x)	Tally	Frequency (f)	Cumulative frequency
0			
2			
3			
4			
5			
6			
7			
8			
10			

Probability and statistics



UNIT 6: Relative frequency

QUESTION 1 Write the relative frequency of the score '3', **i** as a fraction **ii** as a decimal, in the following number sets.

- a 8, 4, 2, 8, 4, 5, 3, 3 _____
- b 1, 8, 10, 7, 1, 12, 8, 7, 3, 3 _____
- c 3, 7, 6, 7, 7, 5, 6, 7, 3, 3, 3 _____
- d 6, 9, 8, 9, 7, 9, 6, 5, 3, 3 _____
- e 2, 9, 5, 9, 3, 9, 6 _____
- f 7, 7, 5, 7, 5, 7, 3, 5, 7 _____
- g 1, 8, 6, 8, 4, 3, 8, 2, 1 _____
- h 3, 4, 4, 5, 6, 8, 5, 7, 5, 5, 4, 5, 3, 3 _____
- i 4, 8, 3, 2, 5, 4, 8, 5 _____
- j 6, 5, 6, 6, 7, 8, 10, 12, 6, 3, 3, 3 _____
- k 3, 7, 9, 11, 12, 15, 9, 7, 7, 7, 9, 3, 3 _____
- l 6, 8, 10, 12, 10, 11, 10, 10, 11, 3, 3 _____
- m 2, 3, 3, 2, 4, 3, 3, 4, 2, 4 _____
- n 3, 3, 4, 5, 4, 5, 4, 4, 4, 5 _____
- o 3, 8, 7, 6, 8, 7, 8, 8, 6, 8, 8, 7 _____
- p 5, 4, 9, 8, 7, 8, 8, 8, 7, 8, 8, 7, 3, 3, 3 _____

QUESTION 2 Complete the relative frequency column for the following tables. Give your answer correct to two decimal places.

a

Score (x)	Frequency (f)	Relative frequency
1	2	
2	4	
3	3	
4	2	
5	8	
6	4	
7	7	

b

Score (x)	Frequency (f)	Relative frequency
3	3	
6	5	
9	2	
12	6	
15	3	
18	4	
21	7	

c

Score (x)	Frequency (f)	Relative frequency
2	3	
4	2	
6	3	
8	4	
10	2	
12	4	
14	2	

d

Score (x)	Frequency (f)	Relative frequency
5	3	
10	5	
15	4	
20	6	
25	7	
30	10	
35	5	

e

Score (x)	Frequency (f)	Relative frequency
10	5	
20	4	
30	5	
40	6	
50	8	
60	5	
70	7	

f

Score (x)	Frequency (f)	Relative frequency
7	6	
14	8	
21	7	
28	4	
35	8	
42	10	
49	7	



UNIT 7: Stem and leaf plots

QUESTION 1 Complete the stem and leaf plot for the following sets of scores.

a

60	48	46	53	50	47
50	49	68	61	62	46
78	48	46	49	48	48
74	50	46	48	66	49
50	46	72	46	77	51

Stem	Leaf
4	
5	
6	
7	

b

25	37	61	09	17	29
33	41	53	64	08	32
27	62	67	43	63	44
38	33	61	27	18	17
09	15	43	47	52	53

Stem	Leaf

QUESTION 2 Complete an ordered stem and leaf plot for the following sets of scores.

a

53	68	57	71	82	94
62	73	56	82	93	95
51	62	38	49	79	68
33	38	55	67	62	91
38	31	69	73	71	82

Stem	Leaf

b

8	10	15	25	34	47
51	28	10	9	8	15
16	32	43	51	8	41
37	51	38	27	16	9
28	31	43	47	54	16

Stem	Leaf

Probability and statistics

Instructions for SECTION 1

- You have 15 minutes to answer Section 1
- Each question is worth 2 marks
- Attempt ALL questions
- Calculators are NOT to be used
- Fill in only ONE CIRCLE for each question

	Mark	
<p>1 Two eggs are chosen at random from a carton containing three brown eggs and nine white eggs. What is the probability that both are brown?</p> <p> <input type="radio"/> (A) $\frac{9}{44}$ <input type="radio"/> (B) $\frac{6}{11}$ <input type="radio"/> (C) $\frac{19}{44}$ <input type="radio"/> (D) $\frac{1}{22}$ </p>	2	
<p>2 Find the probability of throwing two heads when three coins are tossed at the same time.</p> <p> <input type="radio"/> (A) $\frac{3}{8}$ <input type="radio"/> (B) $\frac{1}{8}$ <input type="radio"/> (C) $\frac{3}{4}$ <input type="radio"/> (D) $\frac{7}{8}$ </p>	2	
<p>3 Two dice are thrown. Find the probability that the sum is less than 5.</p> <p> <input type="radio"/> (A) $\frac{1}{4}$ <input type="radio"/> (B) $\frac{1}{12}$ <input type="radio"/> (C) $\frac{1}{6}$ <input type="radio"/> (D) $\frac{1}{3}$ </p>	2	
<p>4 In a simultaneous toss of two coins, find the probability of throwing two tails.</p> <p> <input type="radio"/> (A) $\frac{1}{2}$ <input type="radio"/> (B) $\frac{3}{4}$ <input type="radio"/> (C) $\frac{1}{4}$ <input type="radio"/> (D) 1 </p>	2	
<p>5 In a single throw of two dice, find the probability of totalling 8 or 11.</p> <p> <input type="radio"/> (A) $\frac{5}{36}$ <input type="radio"/> (B) $\frac{1}{18}$ <input type="radio"/> (C) $\frac{7}{36}$ <input type="radio"/> (D) $\frac{1}{12}$ </p>	2	
<p>6 Two cards are drawn from a pack of playing cards in succession (with replacement). Find the probability that both are aces.</p> <p> <input type="radio"/> (A) $\frac{1}{13}$ <input type="radio"/> (B) $\frac{1}{26}$ <input type="radio"/> (C) $\frac{168}{169}$ <input type="radio"/> (D) $\frac{1}{169}$ </p>	2	
<p>7 From the set of scores 3, 1, 4, 6, 5, 5, 7, 3, 4, 5, 4, 5, 7 the mode is</p> <p> <input type="radio"/> (A) 6 <input type="radio"/> (B) 4.538 <input type="radio"/> (C) 5 <input type="radio"/> (D) 4 </p>	2	
<p>8 For the set of scores 8, 9, 12, 7, 9, 11, 8, 9, 5, 13, 7, 9 find the range.</p> <p> <input type="radio"/> (A) 7 <input type="radio"/> (B) 9 <input type="radio"/> (C) 4 <input type="radio"/> (D) 8 </p>	2	
<p>9 For the set of scores 30, 50, 60, 30, 70, what is the difference between the mean and the mode?</p> <p> <input type="radio"/> (A) 2 <input type="radio"/> (B) 12 <input type="radio"/> (C) 18 <input type="radio"/> (D) 20 </p>	2	
<p>10 The mean of the numbers 8, 10 and x is the same as the mean of the numbers 6, 8, 10 and 12. Find the value of x.</p> <p> <input type="radio"/> (A) 6 <input type="radio"/> (B) 9 <input type="radio"/> (C) 10 <input type="radio"/> (D) 12 </p>	2	
<p>Total marks achieved for SECTION 1</p>		20

Probability and statistics

Instructions for SECTION 2

- You have 20 minutes to answer ALL of Section 2
- Each question is worth 2 marks
- Attempt ALL questions
- Calculators may be used

Questions	Answers	Mark
A card is chosen at random from a normal pack of 52 cards. What is the probability that:		
1 it is an ace?	_____	<input type="text" value="2"/>
2 it is an ace of hearts?	_____	<input type="text" value="2"/>
3 it is not an ace?	_____	<input type="text" value="2"/>
4 it is a red ace?	_____	<input type="text" value="2"/>
A three-digit number is to be formed from the digits 4, 5 and 6 that are written on cards. What is the probability that the number will:		
5 be even?	_____	<input type="text" value="2"/>
6 be odd?	_____	<input type="text" value="2"/>
7 be greater than 600?	_____	<input type="text" value="2"/>
8 be less than 600?	_____	<input type="text" value="2"/>
9 be divisible by 3?	_____	<input type="text" value="2"/>
10 be less than 400?	_____	<input type="text" value="2"/>
11 be divisible by 5?	_____	<input type="text" value="2"/>
For the set of scores 5, 7, 5, 5, 9, 5, 8, 7, 6, 5 find:		
12 the mean.	_____	<input type="text" value="2"/>
13 the mode.	_____	<input type="text" value="2"/>
14 the median.	_____	<input type="text" value="2"/>
15 the range.	_____	<input type="text" value="2"/>

Total marks achieved for SECTION 2

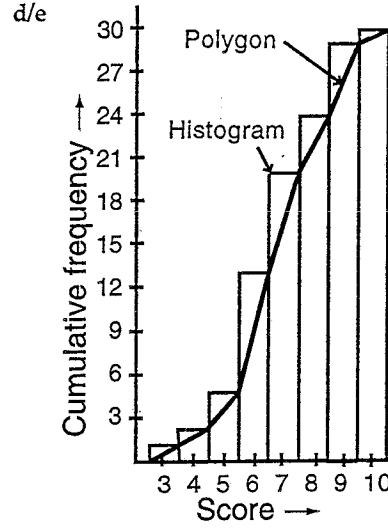
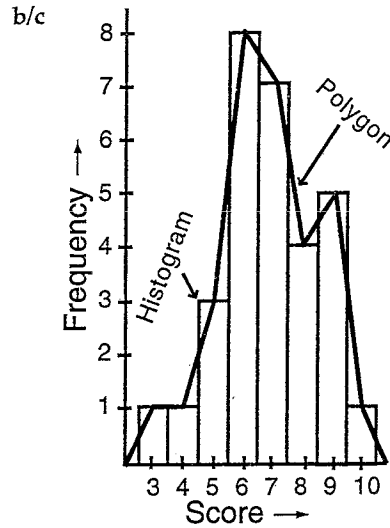
/

Answers

PAGE 71

1 a

x	Tally	f	c.f.
3		1	1
4		1	2
5		3	5
6		8	13
7		7	20
8		4	24
9		5	29
10		1	30
		$\Sigma f = 30$	



2 a

x	Tally	f	c.f.
0		1	1
2		2	3
3		3	6
4		1	7
5		3	10
6		2	12
7		5	17
8		1	18
10		2	20

b 5.35 c 7 d 10 e 5

PAGE 72 1 a $\frac{1}{4}, 0.25$ b $\frac{1}{5}, 0.2$ c $\frac{4}{11}, 0.36$ d $\frac{1}{5}, 0.2$ e $\frac{1}{7}, 0.14$ f $\frac{1}{9}, 0.11$ g $\frac{1}{9}, 0.11$ h $\frac{3}{14}, 0.21$ i $\frac{1}{8}, 0.125$ j $\frac{1}{4}, 0.25$ k 0.23 l $\frac{2}{11}, 0.18$ m $\frac{2}{5}, 0.4$ n $\frac{1}{5}, 0.2$ o $\frac{1}{12}, 0.083$ p $\frac{1}{5}, 0.2$ 2 a 0.07, 0.13, 0.10, 0.07, 0.27, 0.13, 0.23 b 0.10, 0.17, 0.07, 0.20, 0.10, 0.23 c 0.15, 0.10, 0.15, 0.20, 0.10, 0.20, 0.10 d 0.08, 0.13, 0.10, 0.15, 0.18, 0.25, 0.13 e 0.13, 0.10, 0.13, 0.15, 0.20, 0.13, 0.18 f 0.12, 0.16, 0.14, 0.16, 0.20, 0.14

PAGE 73

1 a

Stem	Leaf
4	8 6 7 9 6 8 6 9 8 8 6 8 9 6 6
5	3 0 0 0 0 1
6	0 8 1 2 6
7	8 4 2 7

b

Stem	Leaf
0	9 8 9
1	7 8 7 5
2	5 9 7 7
3	7 3 2 8 3
4	1 3 4 3 7
5	3 2 3
6	1 4 2 7 3 1

2 a

Stem	Leaf
3	1 3 8 8 8
4	9
5	1 3 5 6 7
6	2 2 2 7 8 8 9
7	1 1 3 3 9
8	2 2 2
9	1 3 4 5

b

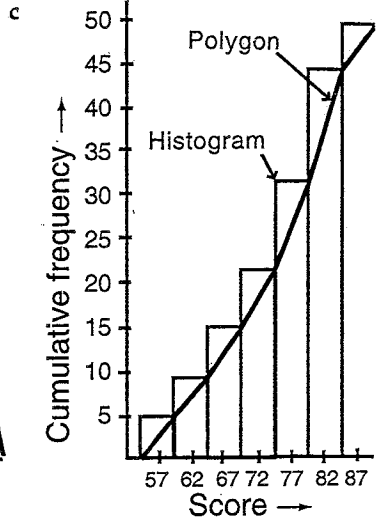
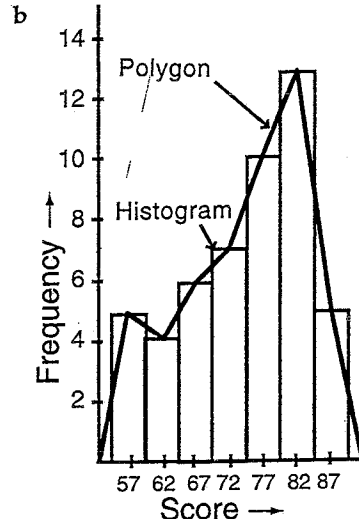
Stem	Leaf
0	8 8 8 9 9
1	0 0 5 5 6 6 6
2	4 5 7 8 8
3	1 2 4 7 8
4	1 3 3 7 7
5	1 1 1

EXCEL ESSENTIAL SKILLS: YEAR 9 ADVANCED MATHS REVISION AND EXAM WORKBOOK

1

PAGE 74 1 a

Class	c.c.	Tally	f	c.f.	$f \times c.c.$
55 - 59	57		5	5	285
60 - 64	62		4	9	248
65 - 69	67		6	15	402
70 - 74	72		7	22	504
75 - 79	77		10	32	770
80 - 84	82		13	45	1066
85 - 89	87		5	50	435
			$\Sigma f = 50$		$\Sigma f \times c.c. = 3710$



PAGE 75 1 D 2 A 3 C 4 C 5 C 6 D 7 C 8 A 9 C 10 B

PAGE 76 1 $\frac{1}{13}$ 2 $\frac{1}{52}$ 3 $\frac{12}{13}$ 4 $\frac{1}{26}$ 5 $\frac{2}{3}$ 6 $\frac{1}{3}$ 7 $\frac{1}{3}$ 8 $\frac{2}{3}$ 9 1 10 0 11 $\frac{1}{3}$ 12 6.2 13 5 14 5.5 15 4