FINAL ASSESMENT

Q1- Factorise:

a. 4x^2 -1
b. 28x^3 – 63x
c. (x-2)^2 – 7
d. (x+1)^2 – 4
e. (3x-1)^2 – (x+1)^2
f. 16x^2 – (2x + 3)^2
g. -8x^2 – 24x – 18
h. 25x^2 – 10x + 1
i. 6x^2 – 19x + 10

Q2- The following marks were scored for a test out of 50 marks:

47 32 32 29 36 39 40 46 43 39 44 18 38 45 35 46 7 44 27 48

a. Construct a stem plot to display the data.

b. How many students scored 40 or more marks?

c. What percentage of the students scored less than 30 marks?

d. A score of 25 or more is required to pass the test. What percentage of the students passed?

e. Describe the distribution of the data.

Q3- Find the mean and median of the data set:

a.

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

Scale: 2 | 5 = 25

Q4- Find x if:

a. 9, x, 14, 18, x, x, 8, 10 and 4 have a mean of 11.

Q5- Sixty peple were asked: " How many times have you been to the cinema in the last twelve months?". The results are given in the table alongside.

Number of times	*Frequency*
0 - 4	19
5 - 9	24
10 - 14	10
15 - 19	5
20 - 24	2

a. Extend the table to include an interval midpoint and a product column.
b. Estimate the mean of the data.

Q6- **An airport authority measured the speeds of planes as they touched down on the runway during a particular day.**

Speed v (km/h)	*Frequency*
$200 \leqslant v < 220$	12
$220 \leqslant v < 240$	16
$240 \leqslant v < 260$	21
$260 \leqslant v < 280$	18
$280 \leqslant v < 300$	13

a. Construct a cumulative frequency table for the data.
b. Draw a cumulative frequency graph of the data.
c. Estimate the number of planes travelling faster than 230 km/h when they touched down.
d. Estimate the median speed.

Q7- The data below shows the number of parking tickets

handed out by an inspector each day for a month.

21 18 27 25 16 22 23 19 22 24

15 21 22 26 14 18 17 19 21 14

13 19 24 28 23 25 16 15 20 25

a. Construct the five-number summary for the data.
b. Draw a box-and-whisker plot to display the data.

Q8- What must be added to create a perfect square and write each equation in the form (x+p)^2 = k:

a. x^2 - 2x = 4
b. x^2 + 3x = -1

Q9- Two numbers differ by 13, and the sum of their squares is 125. Find the numbers.

Q10- A rectangular field has perimeter 600 m and area 21 600 m^2. Find the dimensions of the field.

Q11- For the quadratic function $y = ax^2 + bx + c$, which of the coefficients a, b or c affects:

a. whether the parabola opens upwards or downwards.

b. Whether the parabola is thinner or wider.

c. Whether the parabola cuts the y-axis?

Q12- - Sketch each of the following functions on the same set of axes as $y = x^2$. Use a separate set of axes of each part.

a. $Y = x^2 + 1$
b. $Y = (x-1)^2$
c. $Y = (x-4)^2 – 4$
d. $Y = 2x^2$
e. $Y = -2x^2$
f. $Y = (x+1)^2 + 4$

GOOD LUCK !