Q1.   (a)   Write down the value of 2^{-1}

....

(1)

(b)   Write down the value of $64^{\frac{1}{2}}$

....

(1)
(Total 2 marks)

Q2.   (a)   Find the value of $36^{\frac{1}{2}}$.

....

(1)

(b)   Find the value of $8^{-\frac{2}{3}}$.

....

(2)
(Total 3 marks)

Q3. Write down the value of

(i) 7^0

....

(ii) 5^{-1}

....

(iii) $9^{\frac{1}{2}}$

....

(Total 3 marks)

Q4. Find the value of

(i) 8^0

....

(ii) $\left(\dfrac{1}{3}\right)^{-2}$

....

(iii) $(16^{-2})^{-\frac{3}{4}}$

....

(Total 4 marks)

Q5.   The incomplete histogram and table give some information about the distances some teachers travel to school.
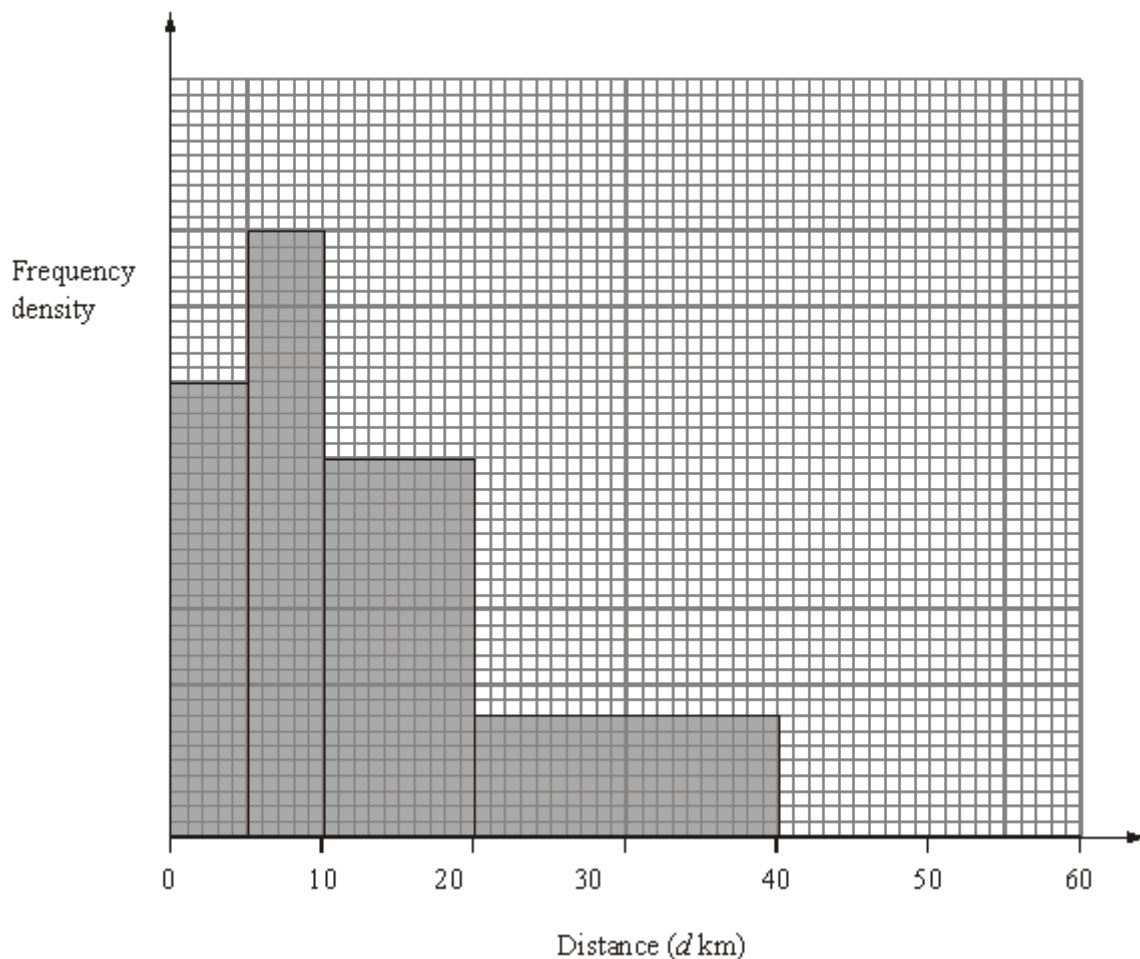
Distance (*d* km)

(a)   Use the information in the histogram to complete the frequency table.

Distance (*d* km)	Frequency
$0 < d \leq 5$	15
$5 < d \leq 10$	20
$10 < d \leq 20$	
$20 < d \leq 40$	
$40 < d \leq 60$	10

(2)

(b)   Use the information in the table to complete the histogram.

(1)
(Total 3 marks)

M1.

	Answer	Mark	Additional Guidance
(a)	0.5	1	**B1** for 0.5 or $\dfrac{1}{2}$
(b)	8	1	**B1** for 8 accept –8
			Total for Question: 2 marks

M2.

	Answer	Mark	Additional Guidance
(a)	6	1	**B1** for 6 or ±6
(b)	$\dfrac{1}{4}$	2	**M1** for $8^{\frac{1}{3}}$ = 2 or $8^{\frac{2}{3}}$ or 4^{-1} or $64^{-\frac{1}{3}}$ or 2^2 or 4 or $\dfrac{1}{2^2}$ or 2^{-2} **A1** for $\dfrac{1}{4}$ or 0.25 or any equivalent vulgar fraction or decimal
			Total for Question: 3 marks

M3.

	Answer	Mark	Additional Guidance
(i)	1	1	**B1** cao
(ii)	$\dfrac{1}{5}$	1	**B1** for $\dfrac{1}{5}$ or 0.2
(iii)	3	1	**B1** cao (accept ± 3)
			Total for Question: 3 marks

M4.

	Working	Answer	Mark	Additional Guidance
(i)		1	4	**B1** cao
(ii)	$\left(\dfrac{3}{1}\right)^2$ or $\left(\dfrac{1}{9}\right)^{-1}$	9		**B1** cao
(iii)	$(16)^{\frac{3}{2}} = (\sqrt{16})^3$	64		**B2** cao [B1 cao for $(16)^{3/2}$ or equvalent]
				Total for Question: 4 marks

M5.

	Answer	Mark	Additional Guidance
(a)	7	1	**B1** for 7 (accept –7 or ±7)
(b)	$3\sqrt{5}$	1	**B1** cao
			Total for Question: 2 marks

E1.   Part (a) was almost always correct though correct answers to part (b) occurred in only 50% of cases. The most common wrong answer was 32; ½ of 64 rather than the square root of 64.

E2.   The most common answer to part (a) was '18', although some candidates did get 6. A few determined candidates worked out 36 squared.

Part (b) was much more demanding, although candidates were rewarded for method such as recognising that negative powers imply reciprocal and/or fractional powers imply roots. Few candidates had any idea how to structure the answer to this question.

##

In part (i) 7 and 0 were the most common incorrect responses. In part (ii) many candidates did not know how to deal with the negative index. The most common incorrect response was –5. Part (iii) proved to be the most challenging with only 34% providing correct answers.

E5.   A great many candidates showed no understanding of fractional powers in part (a) and answers of 49.5 and 24.5 were very common indeed. In part (b) $9\sqrt{5}$ was the most common answer from candidates showing some knowledge of surds.