

Histograms – Drawing

A histogram is an example of a continuous bar chart which is best used for data with unequal class intervals.

Unlike a bar chart, the *area* of the bar is what represents the frequency rather than the height.

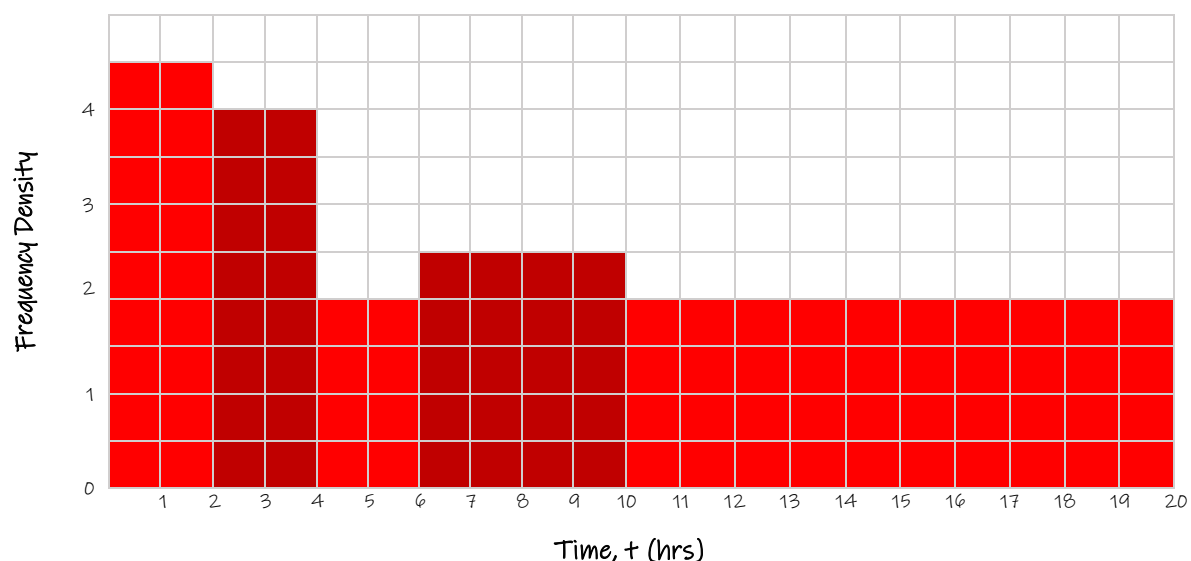
EXAMPLE

Time, t (hrs)	Frequency	Class Width	Frequency Density
$0 \leq t < 2$	9	2	$9 / 2 = 4.5$
$2 \leq t < 4$	8	2	$8 / 2 = 4$
$4 \leq t < 6$	4	2	$4 / 2 = 2$
$6 \leq t < 10$	10	4	$10 / 4 = 2.5$
$10 \leq t < 20$	20	10	$20 / 10 = 2$

Step 1: Calculate the class widths (upper bound – lower bound)

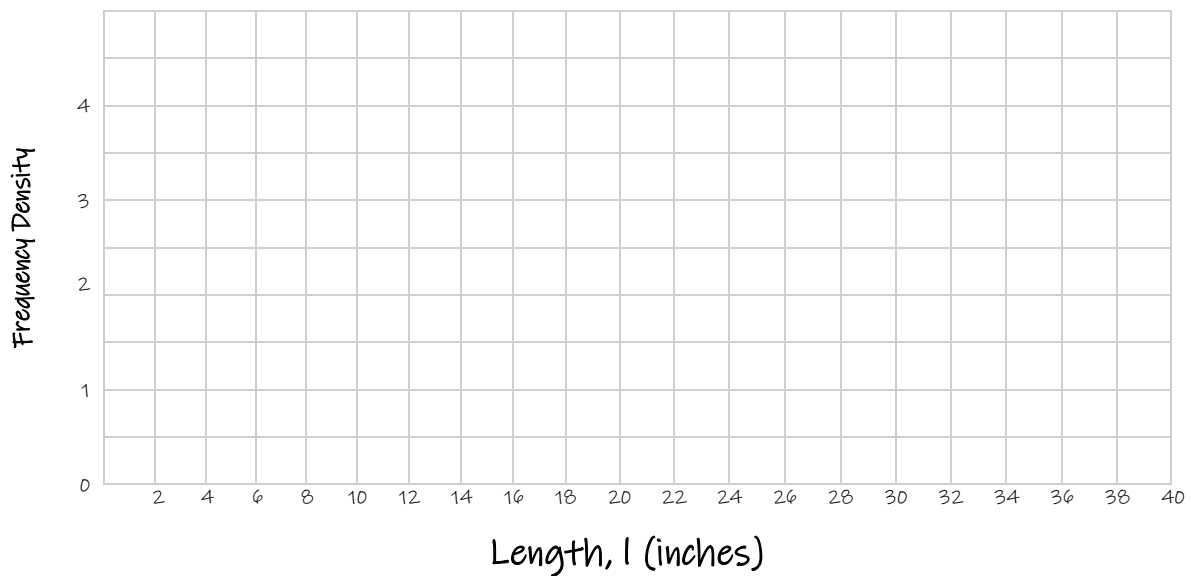
Step 2: Calculate the frequency density (Frequency/class width)

Step 3: Plot each interval with its correct height (FD)

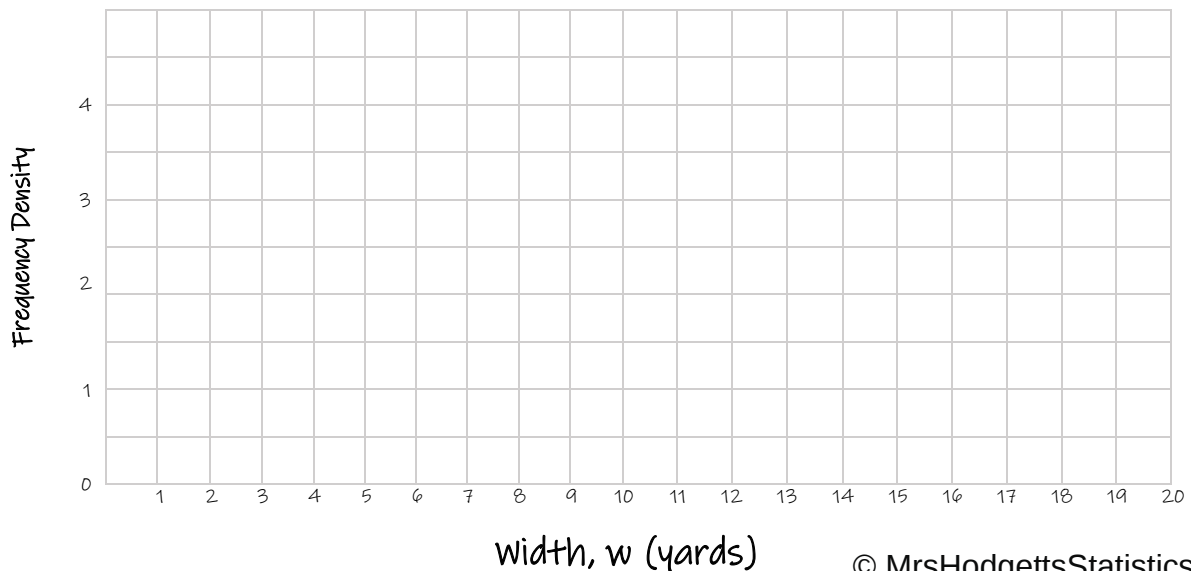


For each of the following frequency tables, plot a histogram for the data on the graph

Length, l (inches)	Frequency	Class Width	Frequency Density
$0 \leq l < 8$	12		
$8 \leq l < 16$	16		
$16 \leq l < 24$	28		
$24 \leq l < 30$	24		
$30 \leq l < 40$	40		

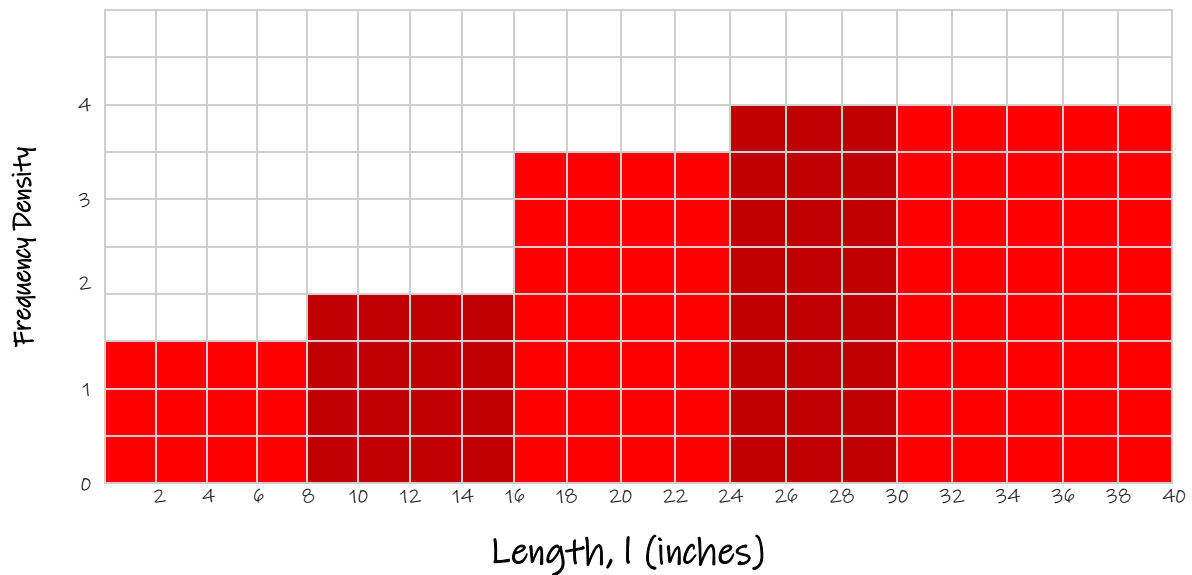


Width, w (yards)	Frequency
$0 \leq w < 5$	15
$5 \leq w < 10$	10
$10 \leq w < 12$	8
$12 \leq w < 14$	6
$14 \leq w < 20$	12



SOLUTIONS

Length, l (inches)	Frequency	Class Width	Frequency Density
$0 \leq l < 8$	12	8	$12 / 8 = 1.5$
$8 \leq l < 16$	16	8	$16 / 8 = 2$
$16 \leq l < 24$	28	8	$28 / 8 = 3.5$
$24 \leq l < 30$	24	6	$24 / 6 = 4$
$30 \leq l < 40$	40	10	$40 / 10 = 4$



Width, w (yards)	Frequency	Class Width	Frequency Density
$0 \leq w < 5$	15	5	$15 / 5 = 3$
$5 \leq w < 10$	10	5	$10 / 5 = 2$
$10 \leq w < 12$	8	2	$8 / 2 = 4$
$12 \leq w < 14$	6	2	$6 / 2 = 3$
$14 \leq w < 20$	12	6	$12 / 6 = 2$

