Histograms

Frequency is represented by area on a histogram

F.D. frequency density is always the vertical axis

Example

Plant Height cm	Frequency
$0 < h \leq 10$	20
$10 < h \leq 30$	30
$30 < h \leq 40$	40
$40 < h \leq 70$	15
$70 < h \leq 80$	10

F.D. = Freq ÷ Class width

$20 \div 10 = 2$
$30 \div 20 = 1.5$
$40 \div 10 = 4$
$15 \div 30 = 0.5$
$10 \div 10 = 1$

What is probability a random plant is more than 35 cm tall?
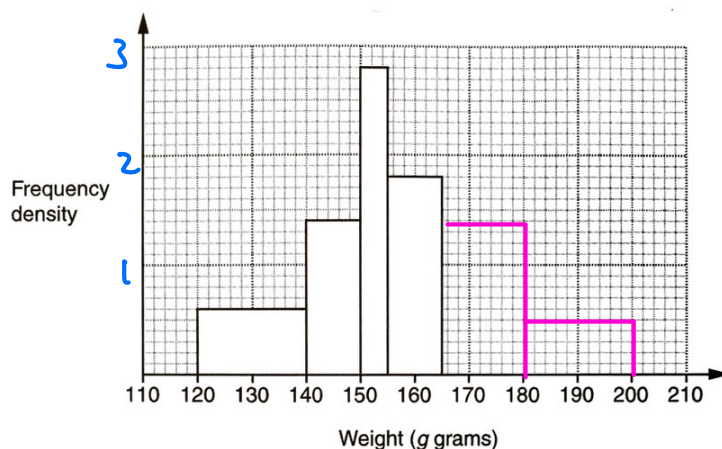
Total Plants = $20 + 30 + 40 + 15 + 10 = 115$

Taller than 35 cm = $20 + 15 + 10 = 45$

Prob (Taller than 35 cm) = $\dfrac{45}{115}$

Exam   Question

16   William is drawing a histogram to show information about the weights of some pears.

Weight (g grams)

(a) Complete the frequency table.

F.D. = FREQ ÷ CLASS WIDTH

$12 \div 20 = 0.6$

$14 \div 10 = 1.4$

Weight (g grams)	Frequency
$120 < g \leqslant 140$	12
$140 < g \leqslant 150$	14
$150 < g \leqslant 155$	14
$155 < g \leqslant 165$	18
$165 < g \leqslant 180$	21
$180 < g \leqslant 200$	10

Freq = $5 \times 2.8 = 14$
$10 \times 1.8 = 18$

$21 \div 15 = \frac{21}{15} = \frac{7}{5} = 1.4$

$10 \div 20 = 0.5$

[2]

(b) Complete the histogram, including a scale.

The info about the bar for 120-140
allowed us to set the FD scale
as we knew it was 0.6 high

[3]