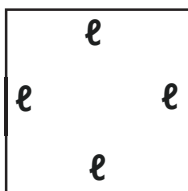
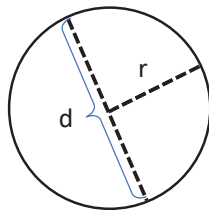


Perimeter, area, and volume

Perimeter

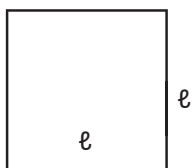


perimeter = $l + l + l + l = 4l$

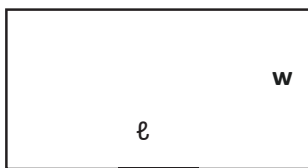


$d = 2r$
perimeter = $2\pi r = \pi d$

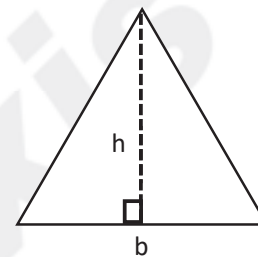
Area



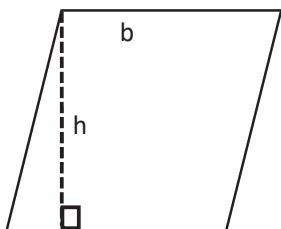
Area = $l \times l = l^2$



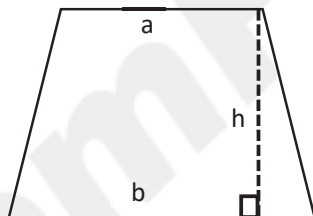
Area = $l \times w = lw$



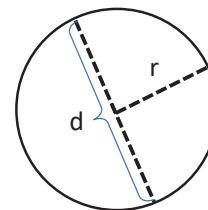
Area = $\frac{1}{2} bh$



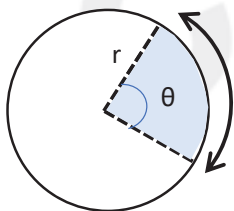
Area = bh



Area = $\frac{1}{2} (a+b) h$



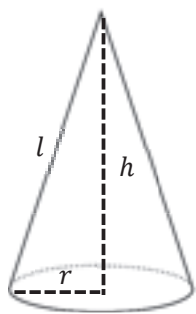
Area = $\pi r^2 = \pi(d/2)^2$



Sector Area = $\frac{\theta}{360} \times \pi r^2$

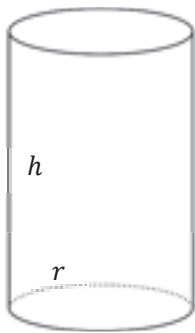
Arc length = $\frac{\theta}{360} \times 2\pi r$

Surface Area and Volume



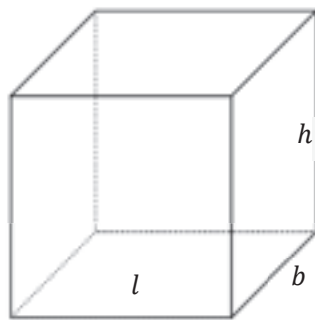
Surface Area
 $= \pi r l + \pi r^2$

Volume = $\frac{1}{3} \pi r^2 h$



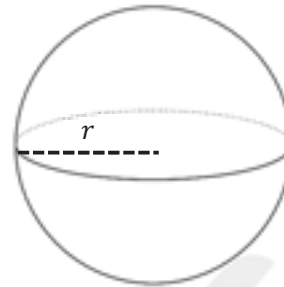
Surface Area
 $= 2\pi r h + 2\pi r^2$

Volume = $\pi r^2 h$



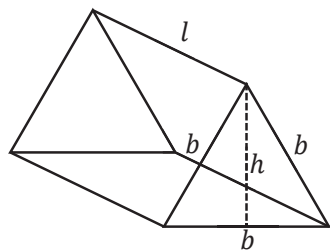
Surface Area
 $= 2lb + 2lh + 2bh$

Volume = $l \times b \times h$



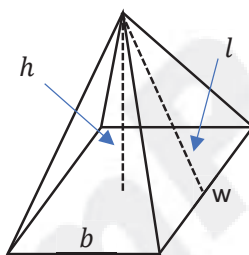
Surface Area
 $= 4\pi r^2$

Volume = $\frac{4}{3} \pi r^3$



Surface Area = $bh + 3lb$

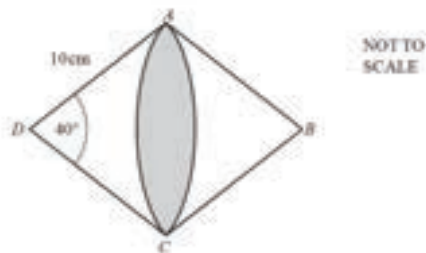
Volume = $\frac{1}{2} hbl$



Surface Area = $bw + 2wl$

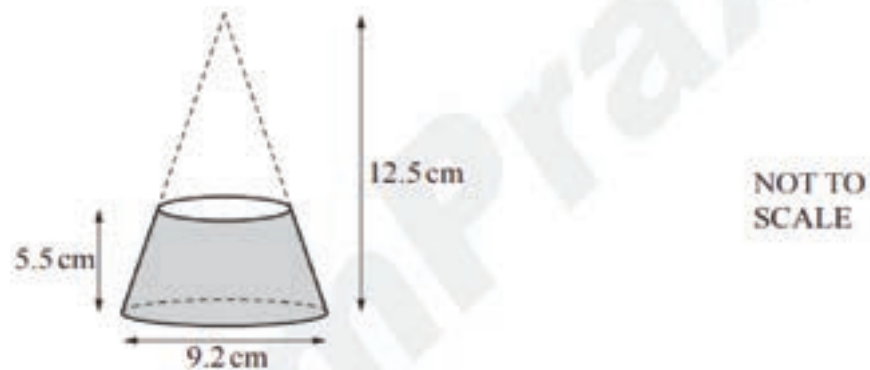
Volume = $\frac{1}{3} bwh$

1. ABCD is a rhombus with side length 10 cm.



Angle ADC = 40°. DAC is a sector of circle with centre D. BAC is a sector of circle with centre B.
 Calculate the shaded area

2.



A solid is made by cutting a small cone from a larger cone, as shown in the diagram.
The height of the larger cone is 12.5 cm.
The height of the solid is 5.5 cm.
The diameter of the base of the larger cone is 9.2 cm.

Work out the volume of the solid.

[The volume, V , of a cone with radius r and height h is $V = \frac{1}{3}\pi r^2 h$.]

..... cm³

Chapter 9: Statistics

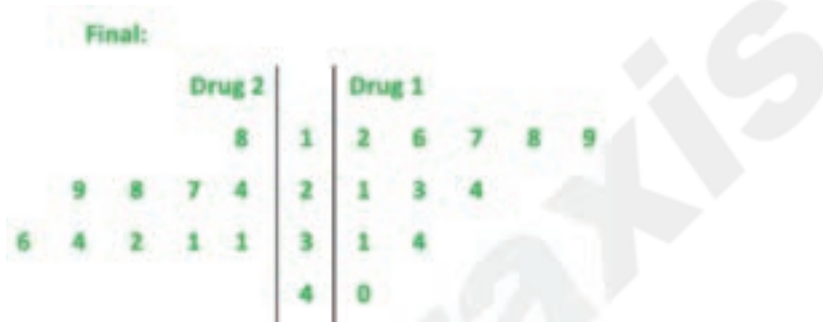
Stem-and-leaf diagram

Drug 1

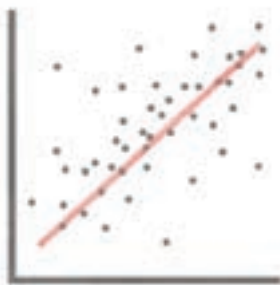
12 31 24 18 21 34 40 19 23 17 16

Drug 2

24 18 29 27 32 36 34 31 28 31



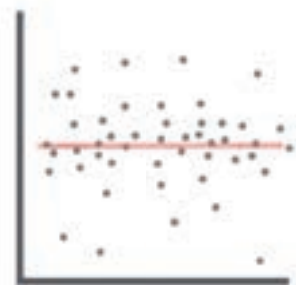
Scatter graphs (positive, negative and zero correlation)



Positive Correlation



Negative Correlation

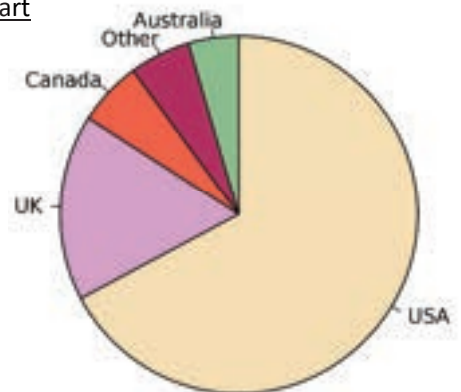


No Correlation

Pictogram



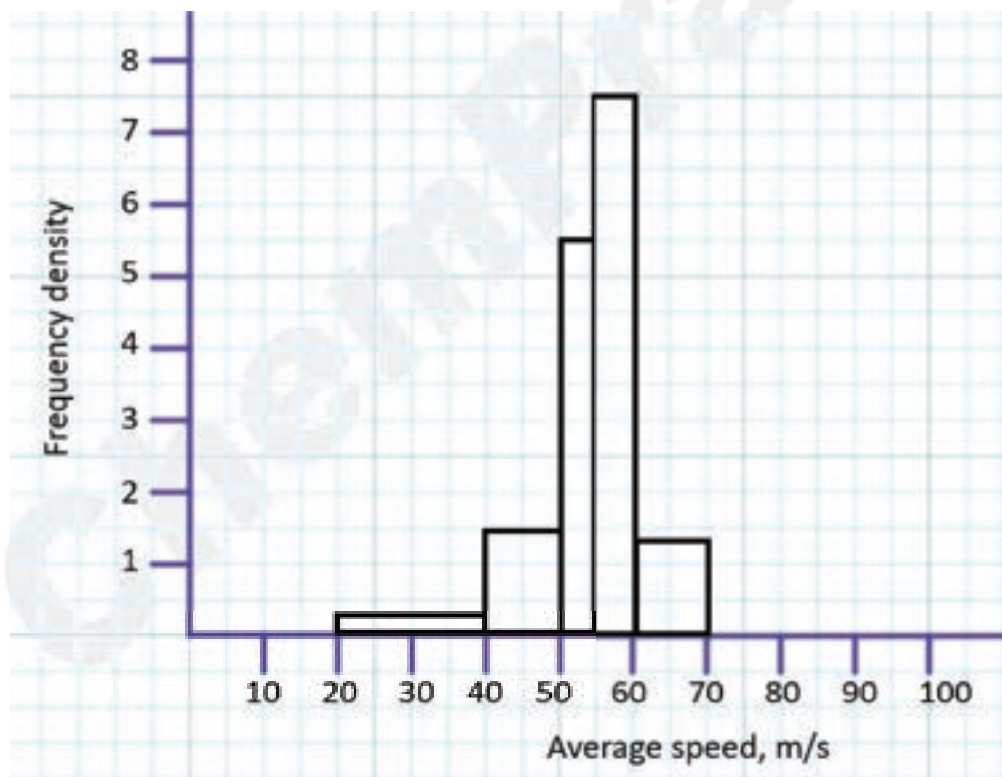
Pie Chart



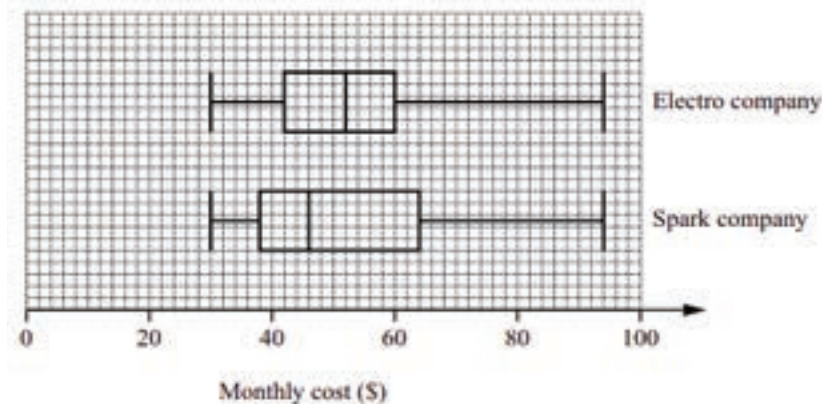
Histogram

$$\text{Frequency density} = \frac{\text{frequency}}{\text{class width}}$$

Average speed, s m/s	Frequency	Class width	Frequency Density
$20 \leq s < 40$	5	$40 - 20 = 20$	$5 \div 20 = 0.25$
$40 \leq s < 50$	15	$50 - 40 = 10$	$15 \div 10 = 1.5$
$50 \leq s < 55$	28	$55 - 50 = 5$	$28 \div 5 = 5.6$
$55 \leq s < 60$	38	$60 - 55 = 5$	$38 \div 5 = 7.6$
$60 \leq s < 70$	14	$70 - 60 = 10$	$14 \div 10 = 1.4$



8. These box-and-whisker plots show the monthly electricity costs for 100 different households who use Electro company or Spark company.



Tom says that the monthly costs with Electro company are lower and vary less than with Spark company. Is Tom correct? Justify your answer with reference to the box-and-whisker plots.

9. The table below shows the number of people in different age groups at a cinema

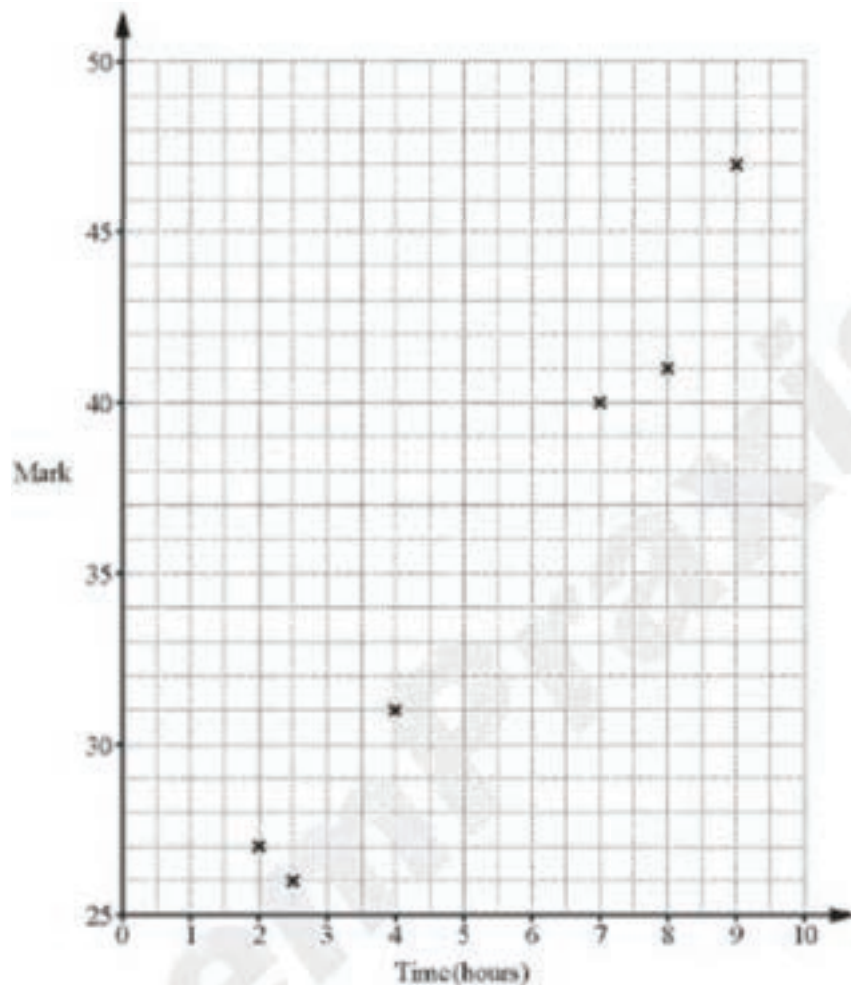
Age (y years)	$15 < y \leq 25$	$25 < y \leq 30$	$30 < y \leq 50$	$50 < y \leq 80$
Number of people	35	32	44	12

Dexter draws a histogram to show this information.

The height of the bar he draws for the group $15 < y \leq 25$ is 7 cm.

Calculate the height of each of the remaining bars

10. Six students revise for a test. The scatter diagram shows the time, in hours, each student spent revising and their mark in the test.



(a) The data for two more students is shown in the table

Time (Hours)	4.5	6.5
Mark	33	35

Plot these two points on the scatter diagram

- (b) What type of correlation is shown on the scatter diagram?
(c) Draw a line of best fit on the scatter diagram
(d) Another student spent 5.5 hours revising. Estimate a mark for this student