



## Key Words

Mixed numbers	a number written as a whole number with a fraction
Estimated mean	For grouped data, we cannot find the exact Mean, Median and Mode, we can only give estimates. To estimate the Mean use the midpoints of the class intervals
Construction	Constructions require you to use a compass, a ruler and a pencil. For example, during your GCSE maths exam, you may be required to construct a triangle
Pythagoras	Pythagoras' theorem says that the area of the square built upon the hypotenuse of a right-angled triangle is equal to the sum of the areas of the squares upon the remaining sides or $c^2 = a^2 + b^2$ .

## Key Information



## Estimated mean

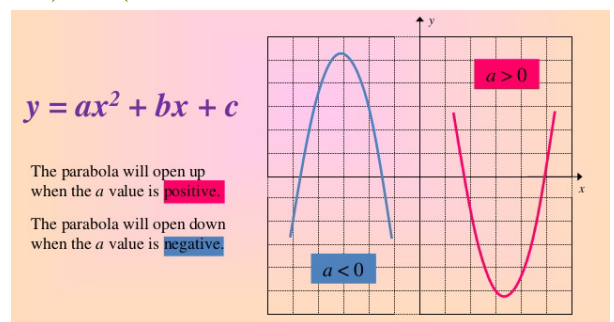
Using Standard Statistics Notation, we obtain the following:

Cappuccinos	$f$	$x$	$fx$
0-3	2	1.5	$2 \times 1.5 = 3$
4-7	3	5.5	$3 \times 5.5 = 16.5$
8-11	8	9.5	$8 \times 9.5 = 76$
12-15	3	13.5	$3 \times 13.5 = 40.5$
16-19	2	17.5	$2 \times 17.5 = 35$
<b>TOTALS</b>	$\sum f = 18$		$\sum fx = 171$

$$\text{MEAN} = \frac{\sum fx}{\sum f} = 171 / 18 = 10 \text{ cappuccinos per hour}$$

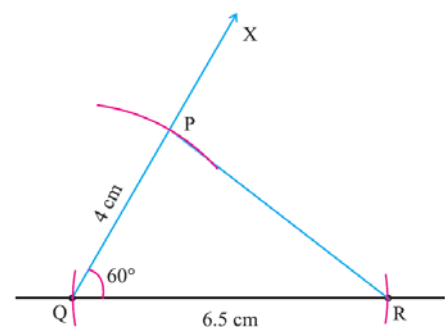


## Plotting quadratic graphs



## Constructing triangles

Using a ruler, protractor and compass construct a triangle of base 6.5cm, angle 4cm and length 4cm accurately.



## + - x ÷ mixed numbers

$$4\frac{2}{3} + 6\frac{1}{4} = 4\frac{8}{12} + 6\frac{3}{12} = 10\frac{11}{12}$$

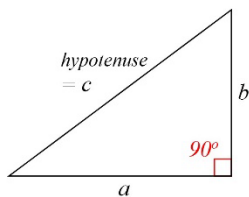
$$25\frac{1}{6} - 11\frac{1}{2} = 25\frac{2}{12} - 11\frac{6}{12} = 13\frac{8}{12} = 13\frac{2}{3}$$

$$2\frac{1}{3} \times 4\frac{1}{2} = \frac{7}{3} \times \frac{9}{2} = \frac{21}{2} = 10\frac{1}{2}$$

$$2\frac{1}{4} \div 3\frac{2}{3} = \frac{9}{4} \div \frac{11}{3} = \frac{9}{4} \times \frac{3}{11} = \frac{27}{44}$$

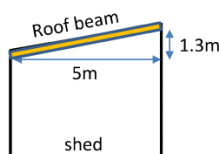


## Pythagoras in context



$$c^2 = a^2 + b^2$$

- 1) A shed with a pent roof need to have some new roof beams fitted. The width of the shed is 5m and the height of the pent roof is 1.3m. Work out the length of the roof beams needed to 1dp.



- 2) Captain is on a geo-cache hunt. His gps tells him that he is 40m away from the treasure. He walks 24m due west. The gps compass now tells him that the treasure is due south from where he is standing. How far south does he need to go to find it?

