

Facts to Remember

Unit 13 The area under a speed-time graph is the *distance* travelled.

The equation of a straight line is of the form

$$y = mx + c$$

where m is the gradient and c is the y -intercept.

Unit 14 A *translation* moves all points of an object in the same direction and the same distance.

Two shapes are *congruent* if they are identical in every way.

Two shapes are *similar* if they have the same shape but may be different in size.

Unit 15 If y is *directly proportional* to x , then $y \propto x$ or $y = kx$ where k is a constant.

If y is *inversely proportional* to x , then $y \propto \frac{1}{x}$ or $y = \frac{k}{x}$ where k is a constant.

Unit 17 The transformation $y = f(x) + a$ moves the curve $y = f(x)$ up by a units.

The transformation $y = f(x + a)$ moves the curve $y = f(x)$ to the left by a units.

The transformation $y = f(kx)$ compresses the curve $y = f(x)$ by a factor k in the x -direction.

The transformation $y = kf(x)$ stretches the curve $y = f(x)$ by a factor k in the y -direction.

Velocity is the gradient of a *distance-time* graph.

Acceleration is the gradient of a *velocity-time* graph.

Unit 19 For column vectors $\begin{pmatrix} a \\ b \end{pmatrix} + \begin{pmatrix} c \\ d \end{pmatrix} = \begin{pmatrix} a+c \\ b+d \end{pmatrix}$ and $k \times \begin{pmatrix} a \\ b \end{pmatrix} = \begin{pmatrix} ka \\ kb \end{pmatrix}$ where k is a constant.

The resultant vector of \mathbf{a} and \mathbf{b} is $\mathbf{a} + \mathbf{b}$.