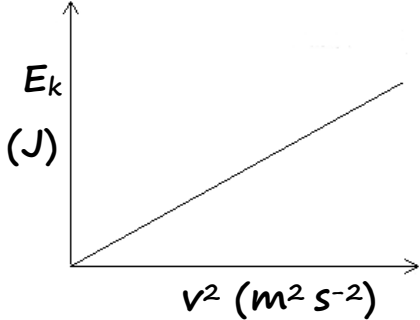
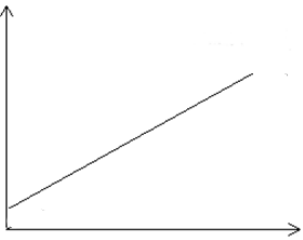
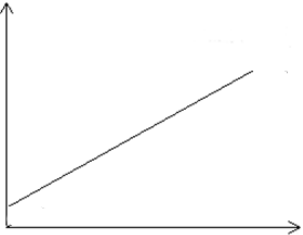
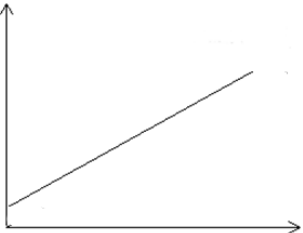
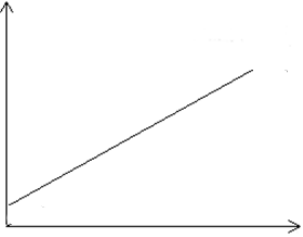
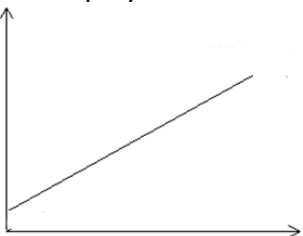


All you wanted to know about Formulae and Graphs (but were afraid to ask!) - Too

Complete the following – the first one has been done as an example:

<p>1.</p>	<p>Aim: To find the mathematical relationship between the kinetic energy, E_k, and the velocity, v, for a car involved in a crash.</p> <p>Formula: $E_k = \frac{1}{2} mv^2$</p>	<p>Variables: <i>velocity, v</i> <i>kinetic energy, E_k</i></p>	<p>Linear Graph you would draw:</p>  <p>What does the gradient tell you? (gradient) $m = \frac{1}{2} m$</p>
<p>2.</p>	<p>Aim: To find the mathematical relationship between the distance, d, of an object that starts from rest and is at constant acceleration and the time, t, from when it started to accelerate from rest.</p> <p>Formula: $d = \frac{1}{2} at^2$</p>	<p>Variables:</p>	<p>Linear Graph you would draw:</p>  <p>What does the gradient tell you?</p>
<p>3.</p>	<p>Aim: To find the mathematical relationship between the magnification, m, and the distance, s_o, of an object from a specific point in front of a lens.</p> <p>Formula: $m = \frac{f}{s_o}$</p>	<p>Variables:</p>	<p>Linear Graph you would draw:</p>  <p>What does the gradient tell you?</p>
<p>4.</p>	<p>Aim: To find the mathematical relationship between the power, P, produced by a light bulb and the current, I, flowing through the light bulb.</p> <p>Formula: $P = I^2R$</p>	<p>Variables:</p>	<p>Linear Graph you would draw:</p>  <p>What does the gradient tell you?</p>

<p>5.</p>	<p>Aim: To find the mathematical relationship between the frequency, f, and the wavelength, λ, of a mechanical wave.</p> <p>Formula:</p> $f = \frac{v}{\lambda}$	<p>Variables:</p>	<p>Linear Graph you would draw:</p>  <p>What does the gradient tell you?</p>
<p>6.</p>	<p>Aim: To find the mathematical relationship between the Electric Field strength, E, of two parallel plates and the distance, d, between them.</p> <p>Formula:</p> $E = \frac{V}{d}$	<p>Variables:</p>	<p>Linear Graph you would draw:</p>  <p>What does the gradient tell you?</p>

Answers

	formula	independent variables	y-axis	x-axis	gradient
1.	$E_k = \frac{1}{2} mv^2$	E_k v	E_k (J)	v^2 ($m^2 s^{-2}$)	$\frac{1}{2} m$
2.	$d = \frac{1}{2} at^2$	d t	d (m)	t^2 (s^2)	$\frac{1}{2} a$
3.	$m = \frac{f}{S_o}$	m S_o	m (-)	$1/S_o$ (m^{-1})	f
4.	$P = I^2 R$	P I	P (W)	I^2 (A^2)	R
5.	$f = \frac{v}{\lambda}$	f λ	f (Hz)	$1/\lambda$ (m^{-1})	v
6.	$E = \frac{V}{d}$	E d	E ($V m^{-1}$)	$1/d$ (m^{-1})	V