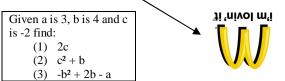
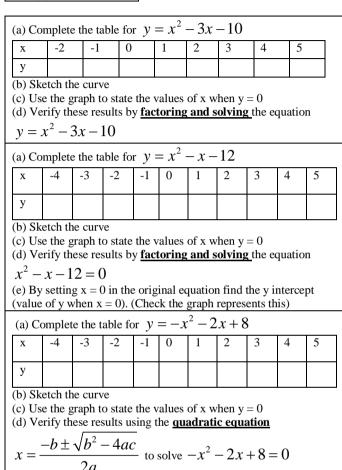
Quadratic Graphs (parabolas) are curves and NOT (not) straight lines





(e) By setting x = 0 in the original equation find the y intercept (value of y when x = 0). (Check the graph represents this)

(a) Complete the table for $y = 3x^2 - 2x - 8$

х	-5	-4	-3	-2	-1	0	1	2	3
У									

(b) Sketch the curve

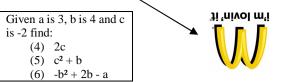
(c) State the values of x when y = 0

(d) Verify these results using the $\underline{\mathbf{quadratic equation}}$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
 to solve $3x^2 - 2x - 8 = 0$
(e) By setting $x = 0$ in the original equation find the vinter

(e) By setting x = 0 in the original equation find the y intercept (value of y when x = 0) (Check the graph represents this)

Quadratic Graphs (parabolas) are curves and NOT (not) straight lines



(a) Cor	(a) Complete the table for $y = x^2 - 3x - 10$											
Х	-2	-1	0	1	2	3	4	5				
У												

(b) Sketch the curve

(c) Use the graph to state the values of x when y = 0

(d) Verify these results by **factoring and solving** the equation

 $y = x^2 - 3x - 10$

(a) Complete the table for $y = x^2 - x - 12$

х	-4	-3	-2	-1	0	1	2	3	4	5
у										

(b) Sketch the curve

(c) Use the graph to state the values of x when y = 0

(d) Verify these results by $\underline{factoring and solving}$ the equation

 $x^2 - x - 12 = 0$

(e) By setting x = 0 in the original equation find the y intercept (value of y when x = 0). (Check the graph represents this)

(a) Complete the table for $y = -x^2 - 2x + 8$

	-			•						
х	-4	-3	-2	-1	0	1	2	3	4	5
У										

(b) Sketch the curve

(c) Use the graph to state the values of x when y = 0

(d) Verify these results using the **<u>quadratic equation</u>**

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \text{ to solve } -x^2 - 2x + 8 = 0$$

(e) By setting x = 0 in the original equation find the y intercept (value of y when x = 0). (Check the graph represents this)

(a) Complete the table for $y = 3x^2 - 2x - 8$

х	-5	-4	-3	-2	-1	0	1	2	3
у									

(b) Sketch the curve

(c) State the values of x when y = 0

(d) Verify these results using the **<u>quadratic equation</u>**

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \text{ to solve } 3x^2 - 2x - 8 = 0$$

(e) By setting x = 0 in the original equation find the y intercept (value of y when x = 0) (Check the graph represents this)

Quadratic Graphs (parabolas) are curves and NOT (not) straight lines



Х	-2	-1	0		1	2	3	4	5	
у										
(b) Sl	cetch th	ne curv	re							
(c) U	se the g	graph t	o state	the v	alues	of x w	hen y	= 0		
(d) V	erify th	ese res	sults b	y <u>fac</u>	toring	and s	olving	the e	quatio	on
<i>y</i> =	$x^2 - 3$	3x-1	10							
(a) C	omplete	e the ta	ble fo	r y =	$=x^2$	- <i>x</i> -	12			
х	-4	-3	-2	-1	0	1	2	3	4	5
у										
(b) Sl	cetch th	ne curv	e	1		I	ı		1	1
	se the g									
(d) V	erify th	ese res	sults b	y <u>fac</u>	toring	and s	olving	the e	quatio	on
x^{2} –	-x - 1	2 = 0)							
(e) B	y settin	g x = 0) in the	e orig	tinal e	quation	n find	the y i	nterco	ept
(valu	e of y w	vhen x	= 0).	(Cheo	ck the	graph	repres	ents th	nis)	•
(a) C	omplet	te the t	able fo	or v	=-x	$r^{2}-2$	x + 8	5		
	-4	-3	-2	-1	0	1	2	3	4	5
X		-			~	-	_	-	-	-
х										
x y										
у	ketch th	ne curv	re							
y (b) Sl (c) U	ketch the	graph t	o state							
y (b) Sl (c) U (d) V	ketch the generation of the set of the generation of the set of the generation of the set of the se	graph to ese res	o state sults u	sing t	the <u>qu</u>	adrati	c equa	ation		
y (b) Sl (c) U (d) V	ketch the generation of the set of the generation of the set of the generation of the set of the se	graph to ese res	o state sults u	sing t	the <u>qu</u>	adrati	c equa	ation		
y (b) Sl (c) U (d) V	ketch the generation of the set of the generation of the set of the generation of the set of the se	graph to ese res	o state sults u	sing t	the <u>qu</u>	adrati	c equa	ation	= 0	
y (b) SI (c) U(d) V (d) V $x =$	xetch the generity the $-b \pm$	graph to be the set of the set o	o state sults u – 4 <i>ac</i>	sing t - C - to	the <u>qu</u> solve	$\frac{adrati}{-x^2}$	$\frac{c}{-2x}$	<u>ation</u> + 8 =		
(b) SI(c) U(d) V $x =(e) B$	ketch the generative for the generative for the generative for the term $-b \pm \frac{-b \pm}{2}$ y setting	graph to lese rest $\sqrt{b^2} - \frac{1}{2a}$ g x = 0	o state sults us -4ac) in the	sing t - - to e orig	the <u>qu</u> solve ginal eo	$\frac{a drati}{-x^2}$	c equal (x + 1) = 2x	a <u>tion</u> + 8 = the y i	nterco	ept
y (b) SI (c) U (d) V x = (e) B (value)	xetch the generity th $-b \pm$ y settin e of y w	graph to tese res $\sqrt{b^2} - \frac{\sqrt{b^2}}{2a}$ g x = 0 when x	to state sults us -4ac) in the = 0).	sing t - - to e orig (Cheo	the <u>qu</u> solve ginal ea ck the	adrati $-x^2$ quation graph	-2x	a <u>tion</u> + 8 = the y i	nterco	ept
y (b) SI (c) U (d) V x = (e) B (value)	xetch the generative for the generative for the generative for the term $-b \pm \frac{-b \pm}{2}$ y setting	graph to tese res $\sqrt{b^2} - \frac{\sqrt{b^2}}{2a}$ g x = 0 when x	to state sults us -4ac) in the = 0).	sing t - - to e orig (Cheo	the <u>qu</u> solve ginal ea ck the	adrati $-x^2$ quation graph	-2x	a <u>tion</u> + 8 = the y i	nterco	ept
y (b) SI (c) U (d) V x = (e) B (value)	xetch the generity th $-b \pm$ y settin e of y w	graph to tese res $\sqrt{b^2} - \frac{\sqrt{b^2}}{2a}$ g x = 0 when x	to state sults us -4ac) in the = 0).	sing t z = - to e orig (Chec r y =	the <u>qu</u> solve ginal eq ck the $= 3x^2$	$\frac{\text{adrati}}{-x^2}$ quation graph $x^2 - 2x^2$	$\frac{c equa}{-2x}$ $\frac{1}{1} - \frac{2x}{1}$ $\frac{1}{1} - \frac{2x}{1}$ $\frac{1}{1} - \frac{2x}{1}$ $\frac{1}{1} - \frac{2x}{1}$	a <u>tion</u> + 8 = the y i	nterco	ept
y (b) SI (c) U (d) V x = (e) B (value) (a) Co	xetch the generity the $-b \pm$ y setting of y work of the setting	graph to esse response respon	to state sults us -4ac) in the = 0). (uble fo	sing t z = - to e orig (Chec r y =	the <u>qu</u> solve ginal each the $= 3x^2$	$\frac{\text{adrati}}{-x^2}$ quation graph $x^2 - 2x^2$	$\frac{c equa}{-2x}$ $\frac{1}{1} - \frac{2x}{1}$ $\frac{1}{1} - \frac{2x}{1}$ $\frac{1}{1} - \frac{2x}{1}$ $\frac{1}{1} - \frac{2x}{1}$	$\frac{1}{100}$ + 8 = the y i ents th	nterco nis)	

(d) Verify these results using the **<u>quadratic equation</u>**

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \text{ to solve } 3x^2 - 2x - 8 = 0$$

(e) By setting x = 0 in the original equation find the y intercept (value of y when x = 0) (Check the graph represents this)

Plotting Quadratic Graphs (Parabolas)

All Quadratic graphs are curves. If the curve 'stops' just continue the sketch. A parabola is symmetric. Task 1 below requires you to plot quadratic graphs.

								plot qu	ladratic	e graphs.				
(a) Complete the table for $y = x^2 - 2x + 1$														
x	-4	-3	-2	-1	0	1	2	3	4	5				
у														
(b) Sk	etch th	ne curv	ve							1				
(c) Us				the v	alue(s) of x	when	$\mathbf{v} = 0$						
(d) Us														
	(e) Draw the line $y = 2x$ on the same graph													
(a) Co	(a) Complete the table for $y = 3x^2 - 4x + 1$													
Х	-4	-3	-2	-1	0	1	2	3	4	5				
Y														
(b) Sk														
		graph t												
(d) Us								= 0						
(e) Dr														
(a) Co								-						
Х	-4	-3	-2	-1	0	1	2	3	4	5				
Y														
(b) Sk														
(c) Us														
(d) Us								= 0						
		line y				-	aph							
(a) Co	mplet	e the ta	able fo	r y =	= (x -	$(-1)^2$								
Х	-4	-3	-2	-1	0	1	2	3	4	5				
Y														
(b) Sk	etch th	ne curv	ve 🛛											
		graph t												
(d) Us								= 0						
(e) Dr														
(a) Co	mplete	e the ta	able fo	r y =	$= x^2 \cdot$	- <i>x</i> -	6							
Х	-4	-3	-2	-1	0	1	2	3	4	5				
Y														
(b) Sk	etch th	l le curv	i ve	1			I		I					
(c) Us				the v	alue(s) of x	when	$\mathbf{v} = 0$						
(d) Us	e the	graph t	o state	the v	alue c	of y wł	nen x =	= 0						
(e) Dr														
								ove (s	et thei	n equal				
to zero	o) and	check	they n	natch	your s	solutio	ns			_				
Task t	hree: 0	Give a	n estin	nate to	the p	oints	of inte	rsectio	n of t	he				
equati	on of t	he stra	aight li	ne an	d the	curves	above							
Task f	our: U	se alg	ebra to	solv	e the e	quatio	ons abo	ove sin	nultan	eously				
					4.1									

Plotting Quadratic Graphs (Parabolas)

All Quadratic graphs are curves. If the curve 'stops' just continue the sketch. A parabola is symmetric. Task 1 below requires you to plot quadratic graphs.

(a) Co	mplete	e the ta	ble fo	r y =	$= x^{2} -$	-2x	+1				
Х	-4	-3	-2	-1	0	1	2	3	4	5	
У											
(1) (1)	1 1.										

(b) Sketch the curve

(c) Use the graph to state the value(s) of x when y = 0

(d) Use the graph to state the value of y when x = 0

(e) Draw the line y = 2x on the same graph

(a) Complete the table for $y = 3x^2 - 4x + 1$

Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										

(b) Sketch the curve

(c) Use the graph to state the value(s) of x when y = 0

(d) Use the graph to state the value of y when x = 0

(e) Draw the line y = x+1 on the same graph

(a) Complete the table for $y = 2x^2 - 2x - 4$

Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										

(b) Sketch the curve

(c) Use the graph to state the value(s) of x when y = 0

(d) Use the graph to state the value of y when x = 0

(e) Draw the line y = -2x+1 on the same graph

(a) Complete the table for $y = (x - 1)^2$

Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										

(b) Sketch the curve

(c) Use the graph to state the value(s) of x when y = 0

(d) Use the graph to state the value of y when x = 0

(e) Draw the line y = 3x-1 on the same graph

(a) Complete the table for $y = x^2 - x - 6$

Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										
(b) Sk (c) Us				the v	alue(s) of x	when	$\mathbf{v} = 0$	•	

(c) Use the graph to state the value(s) of x when y = 0

(d) Use the graph to state the value of y when x = 0

(e) Draw the line y = 1 + 4x on the same graph

Task two: Solve all of the quadratic equations above (set them equal to zero) and check they match your solutions

Task three: Give an estimate to the points of intersection of the

equation of the straight line and the curves above.

Task four: Use algebra to solve the equations above simultaneously

Plotting Quadratic Graphs (Parabolas)

All Quadratic graphs are curves. If the curve 'stops' just continue the sketch. A parabola is symmetric. Task 1 below requires you to plot quadratic graphs.

(a) Complete the table for $y = x^2 - 2x + 1$										
Х	-4	-3	-2	-1	0	1	2	3	4	5
у										
(b) Sketch the curve										
(c) Use the graph to state the value(s) of x when $y = 0$										
(d) Use the graph to state the value of y when $x = 0$										
(e) Draw the line $y = 2x$ on the same graph										
(a) Complete the table for $y = 3x^2 - 4x + 1$										
Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										
(b) Sketch the curve										
(c) Use the graph to state the value(s) of x when $y = 0$										
(d) Use the graph to state the value of y when $x = 0$										
(e) Draw the line $y = x+1$ on the same graph										
(a) Complete the table for $y = 2x^2 - 2x - 4$										
Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										
(b) Sketch the curve										
(c) Use the graph to state the value(s) of x when $y = 0$										
(d) Use the graph to state the value of y when $x = 0$										
(e) Draw the line $y = -2x+1$ on the same graph										
(a) Complete the table for $y = (x-1)^2$										
Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										
(b) Sketch the curve										
(c) Use the graph to state the value(s) of x when $y = 0$										
(d) Use the graph to state the value of y when $x = 0$										
(e) Draw the line $y = 3x-1$ on the same graph										
(a) Complete the table for $y = x^2 - x - 6$										
Х	-4	-3	-2	-1	0	1	2	3	4	5
Y										
(b) Sk	etch tł	ne curv	e							
(b) Sketch the curve(c) Use the graph to state the value(s) of x when y = 0										
(d) Use the graph to state the value of y when $x = 0$										
(e) Draw the line $y = 1 + 4x$ on the same graph										
								ove (s	et ther	n equal
to zero										-
Task t									n of t	ne
equation of the straight line and the curves above. Task four: Use algebra to solve the equations above simultaneously										
Task f	our: U	se alge	ebra to	solv	e the e	equation	ons abo	ove sin	nultan	eously