Identify all the equations which are equivalent to:

$$x^2 + 3x - 5 = 0$$

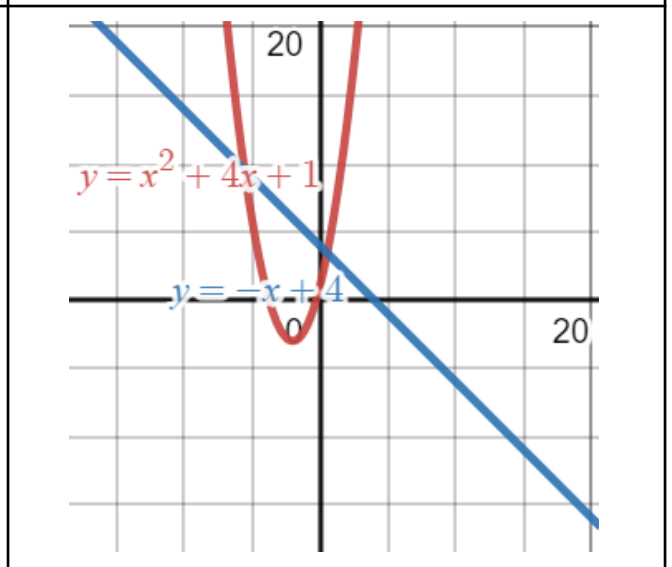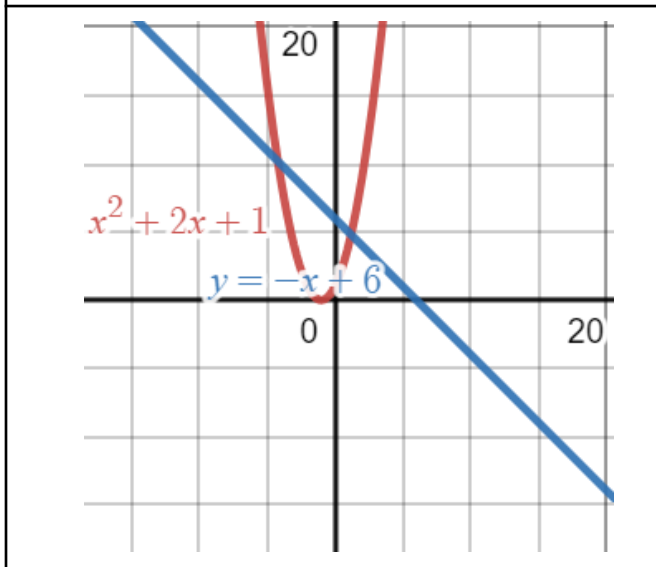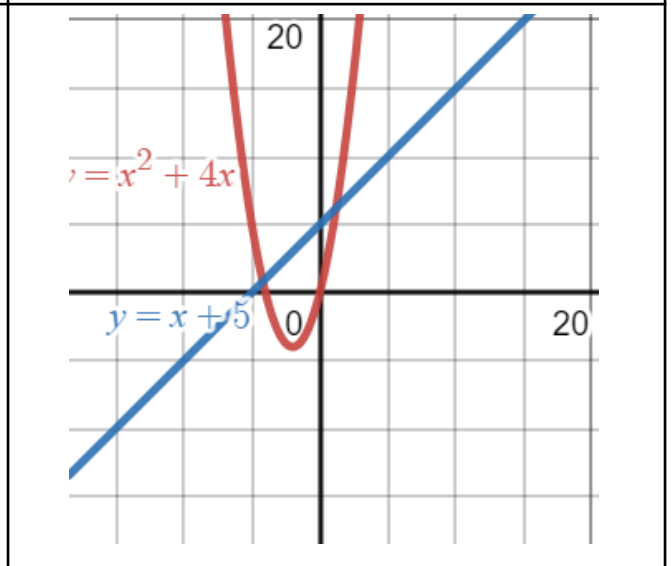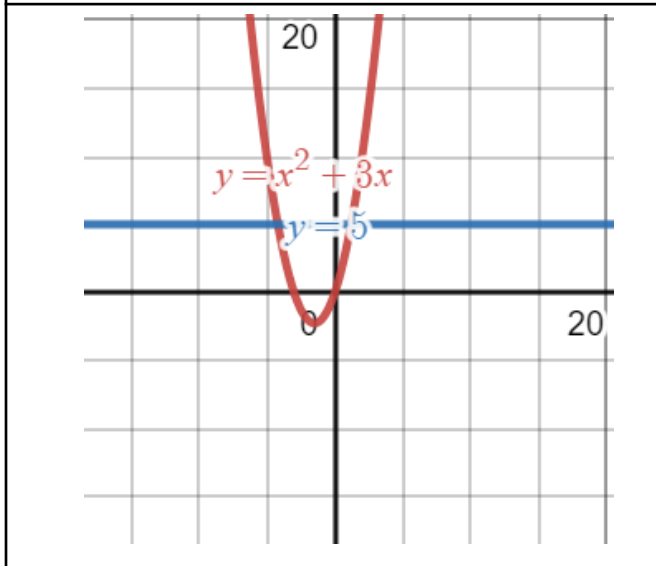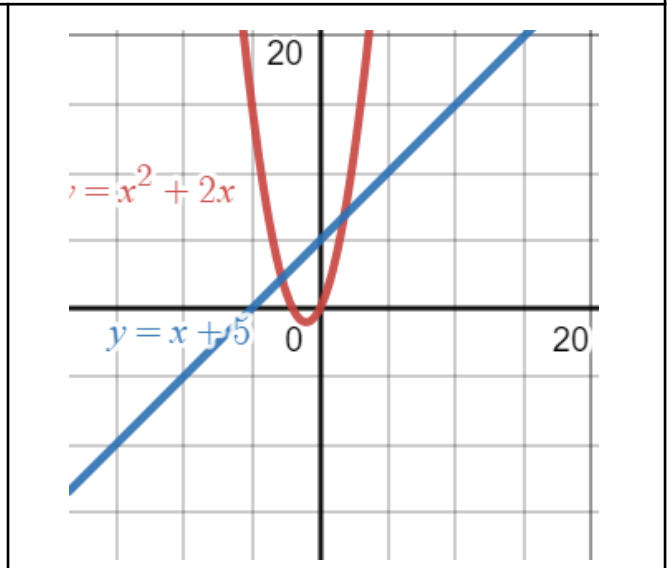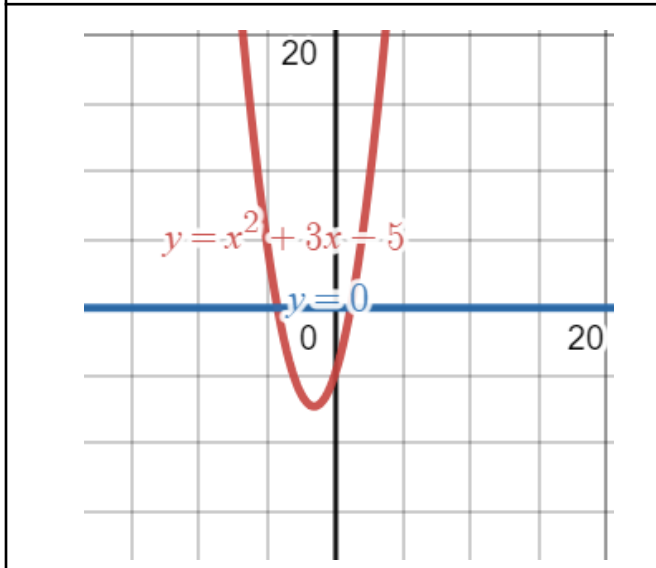|	
$x^2 + 3x = 5$	$x^2 + 4x - 5 = x$
$x^2 + 2x - 5 = x$	$x^2 - 5 = 3x$
$x^2 = 5 + 3x$	$x^2 = 5 - 3x$
$x^2 + 2x + 1 = -x + 6$	$x^2 + 2x + 1 = x + 6$
$x^2 + 2x + 1 = -x - 6$	$x^2 - 1 = -3x + 4$
$x^2 - 4 = 3x - 1$	$2x^2 + 6x - 10 = 0$

Identify all the graphs which can be used to solve

$$x^2 + 3x - 5 = 0$$

$y = x^2 + 3x - 5$
$y = 0$

$y = x^2 + 2x$
$y = x + 5$

$y = x^2 + 3x$
$y = 5$
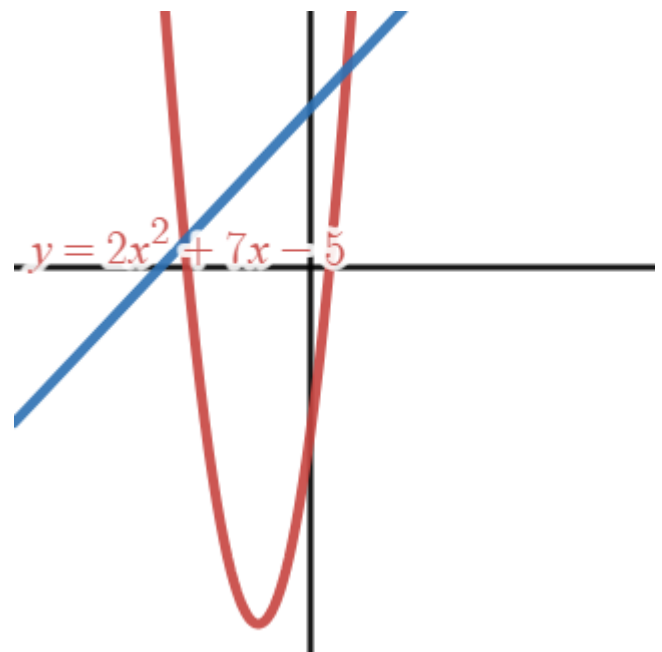

$y = x^2 + 4x$
$y = x + 5$

$x^2 + 2x + 1$
$y = -x + 6$

$y = x^2 + 4x + 1$
$y = -x + 4$
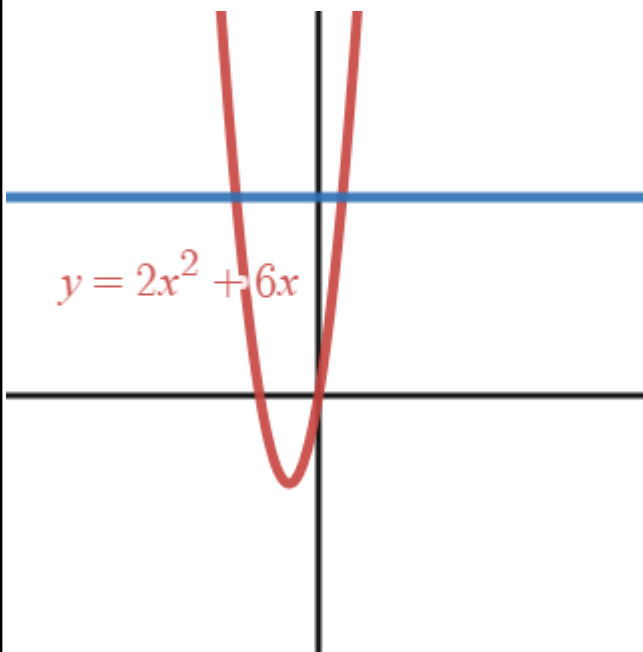
All these graphs can be used to solve
$$x^2 + 3x - 5 = 0$$
work out the equation of the straight line

$x^2 + 4x - 2$

$y = x^2 - x + 3$

$y = 2x^2 + 6x$

$y = 2x^2 + 7x - 5$
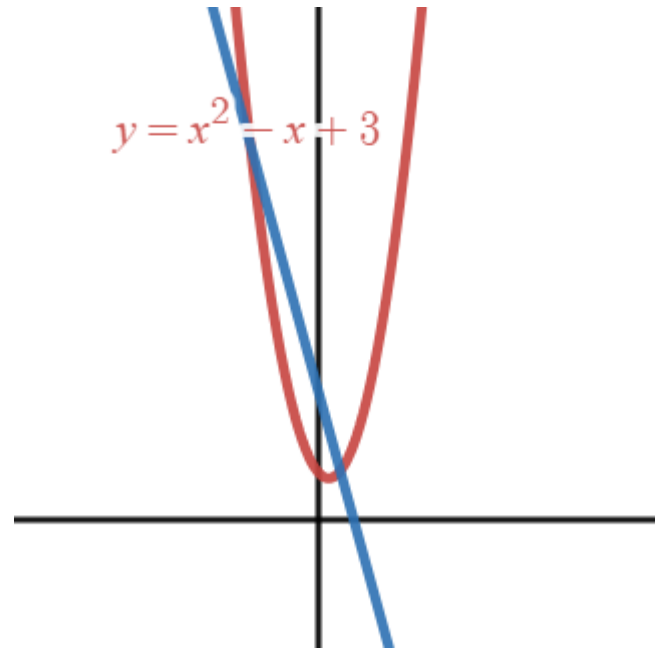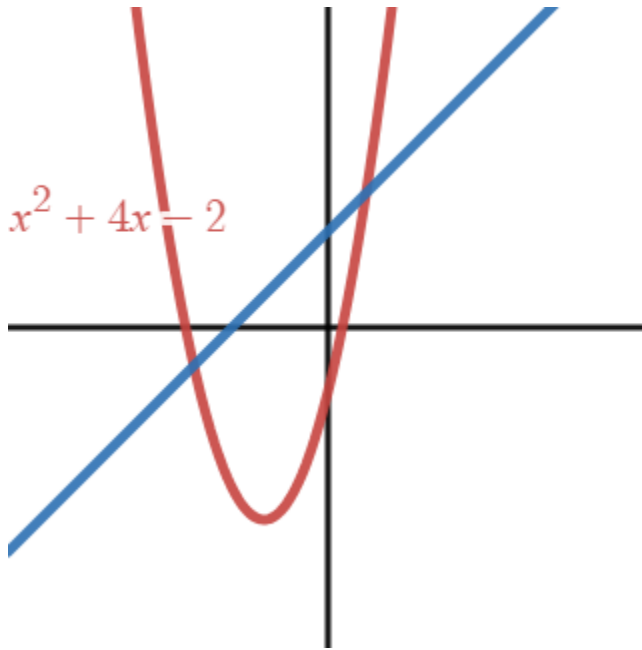
The graphs of these two quadratics can be used to solve
$$x^2 + 3x - 5 = 0$$

The red quadratic is of the form $x^2 + bx + c$

(1)	Find b and c.
(2)	The blue quadratic is of the form $-x^2 + dx + e$. Find d and e.

$(-5, 0)$ $(-1, 0)$

The graphs of these two quadratics can be used to solve
$$x^2 + 3x - 5 = 0$$

The red quadratic is of the form $ax^2 + bx + c$

(1)	Find the equation of the red quadratic.

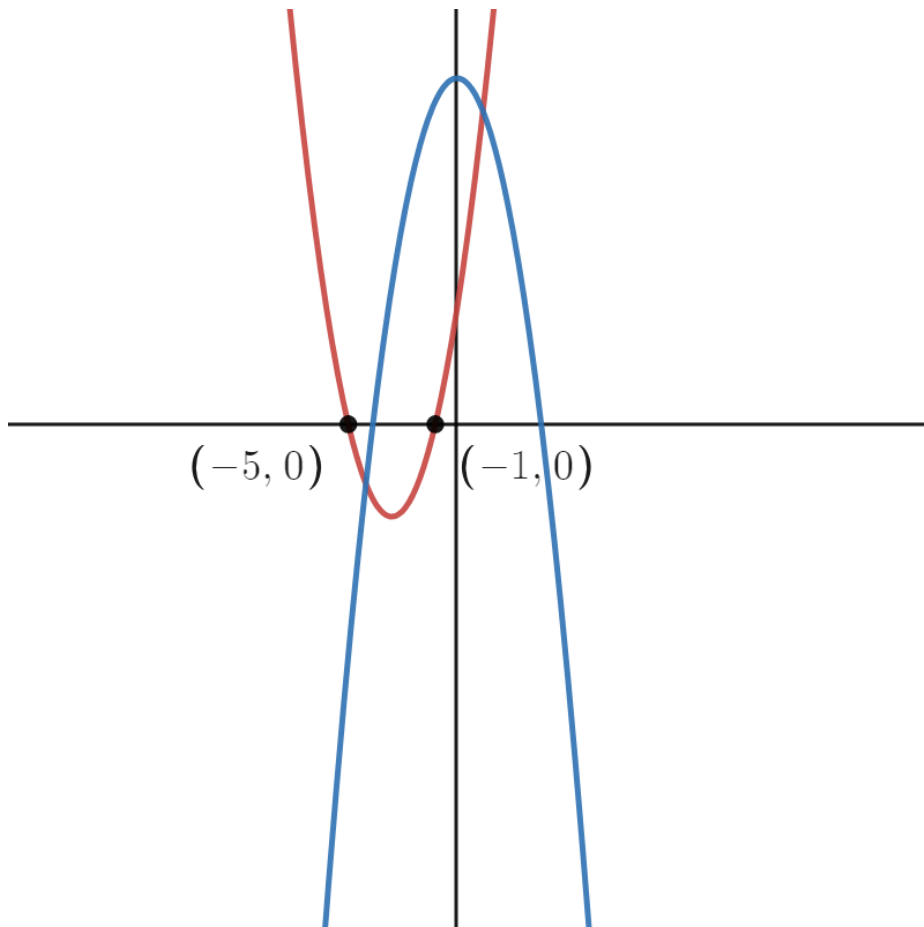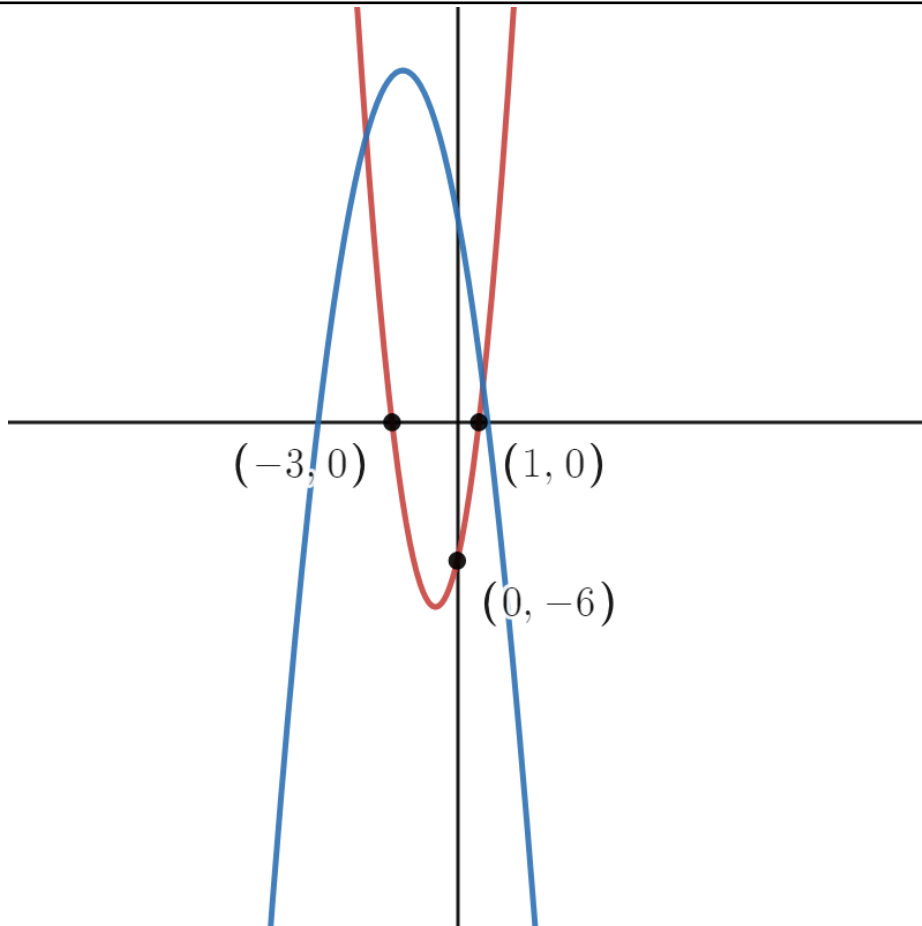| (2)	The blue quadratic is of the form $-x^2 + dx + e$. Find d and e.

$(-3, 0)$ $(1, 0)$

$(0, -6)$

Identify all the equations which are equivalent to:

$$x^2 + 3x - 5 = 0$$

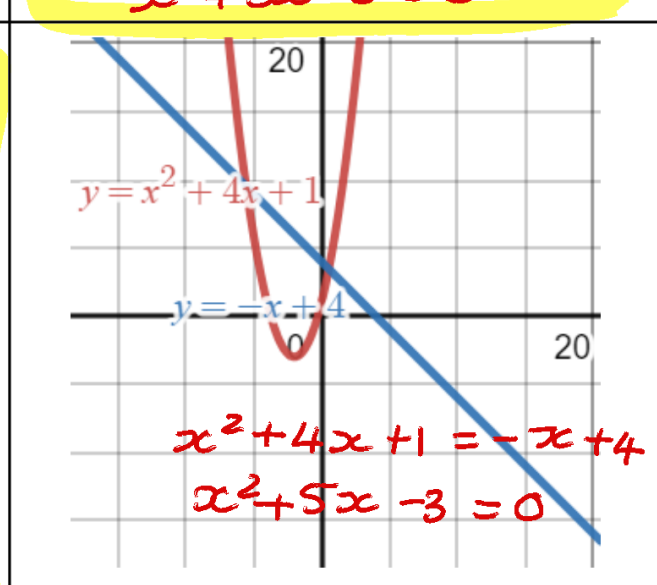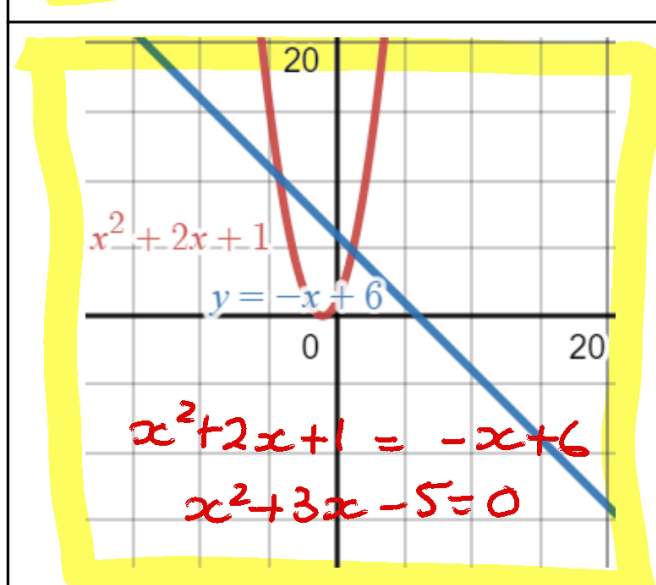|	
$x^2 + 3x = 5$ $x^2 + 3x - 5 = 0$	$x^2 + 4x - 5 = x$ $x^2 + 3x - 5 = 0$
$x^2 + 2x - 5 = x$ $x^2 + x - 5 = 0$	$x^2 - 5 = 3x$ $x^2 - 3x - 5 = 0$
$x^2 = 5 + 3x$ $x^2 - 3x - 5 = 0$	$x^2 = 5 - 3x$ $x^2 + 3x - 5 = 0$
$x^2 + 2x + 1 = -x + 6$ $x^2 + 3x - 5 = 0$	$x^2 + 2x + 1 = x + 6$ $x^2 + x - 5 = 0$
$x^2 + 2x + 1 = -x - 6$ $x^2 + 3x + 7 = 0$	$x^2 - 1 = -3x + 4$ $x^2 + 3x - 5 = 0$
$x^2 - 4 = 3x - 1$ $x^2 - 3x - 3 = 0$	$2x^2 + 6x - 10 = 0$ $x^2 + 3x - 5 = 0$

Identify all the graphs which can be used to solve
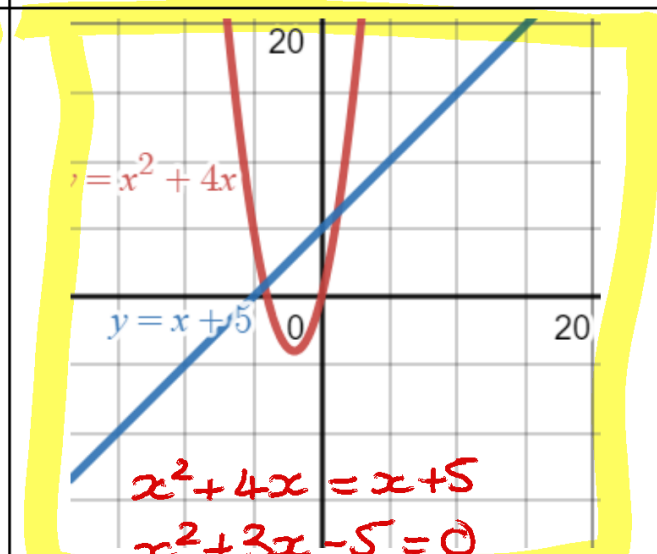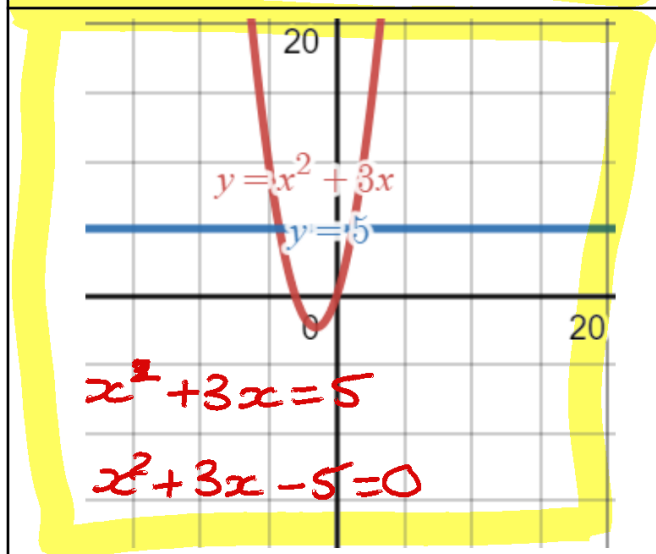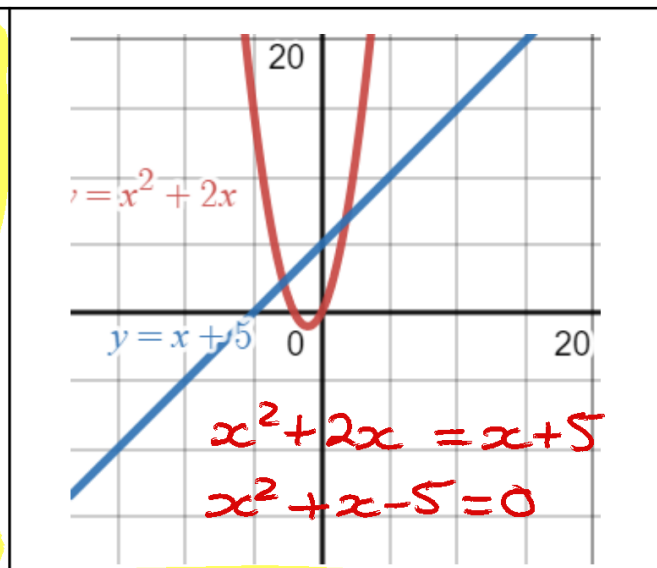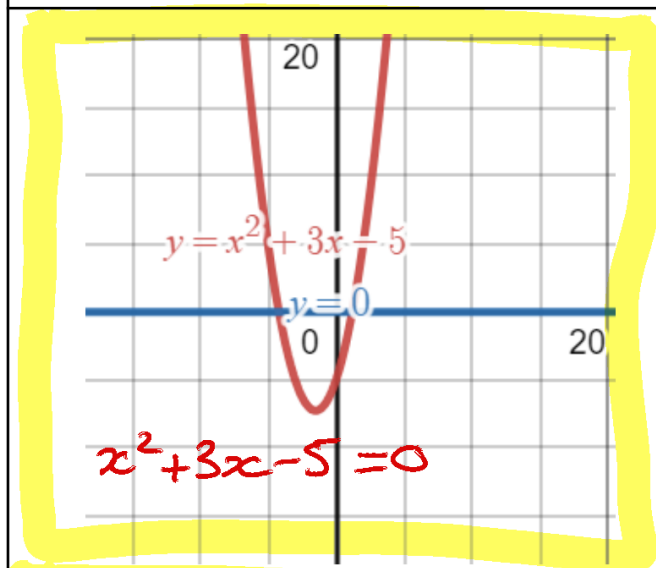
$$x^2 + 3x - 5 = 0$$

$y = x^2 + 3x - 5$

$y = 0$

$$x^2 + 3x - 5 = 0$$

$y = x^2 + 2x$

$y = x + 5$

$$x^2 + 2x = x + 5$$
$$x^2 + x - 5 = 0$$

$y = x^2 + 3x$

$y = 5$

$$x^2 + 3x = 5$$
$$x^2 + 3x - 5 = 0$$

$y = x^2 + 4x$

$y = x + 5$

$$x^2 + 4x = x + 5$$
$$x^2 + 3x - 5 = 0$$

$x^2 + 2x + 1$

$y = -x + 6$

$$x^2 + 2x + 1 = -x + 6$$
$$x^2 + 3x - 5 = 0$$

$y = x^2 + 4x + 1$

$y = -x + 4$

$$x^2 + 4x + 1 = -x + 4$$
$$x^2 + 5x - 3 = 0$$

All these graphs can be used to solve
$$x^2 + 3x - 5 = 0$$
workout the equation of the straight line

$x^2 + 4x - 2$

$y = x + 3$

$x^2 + 3x - 5 = 0$
$x^2 + 4x - 5 = x$
$x^2 + 4x - 2 = x + 3$
$y = x + 3$

$y = x^2 - x + 3$

$y = -4x + 8$

$x^2 + 3x - 5 = 0$
$x^2 - x - 5 = -4x$
$x^2 - x + 3 = -4x + 8$
$y = -4x + 8$

$y = 2x^2 + 6x$

$y = 10$

$x^2 + 3x - 5 = 0$
$2x^2 + 6x - 10 = 0$
$2x^2 + 6x = 10$
$y = 10$

$y = 2x^2 + 7x - 5$

$y = x + 5$

$x^2 + 3x - 5 = 0$
$2x^2 + 6x - 10 = 0$
$2x^2 + 7x - 10 = x$
$2x^2 + 7x - 5 = x + 5$
$y = x + 5$

@karenshancock
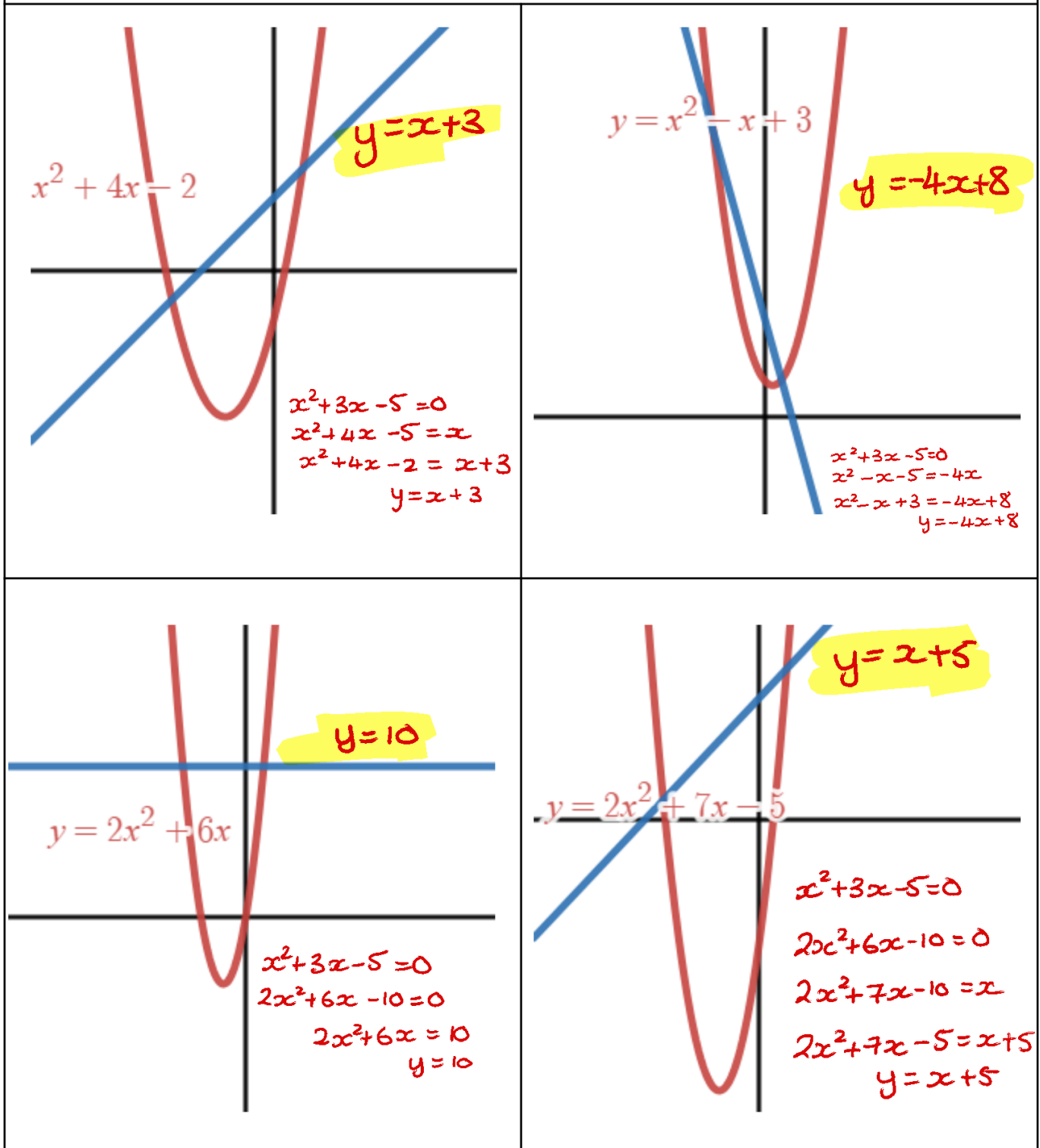
The graphs of these two quadratics can be used to solve
$$x^2 + 3x - 5 = 0$$

The red quadratic is of the form $x^2 + bx + c$

(1) | Find b and c.

$(x+5)(x+1) = x^2 + 6x + 5$

$b = 6, c = 5$

(2) | The blue quadratic is of the form $-x^2 + dx + e$.
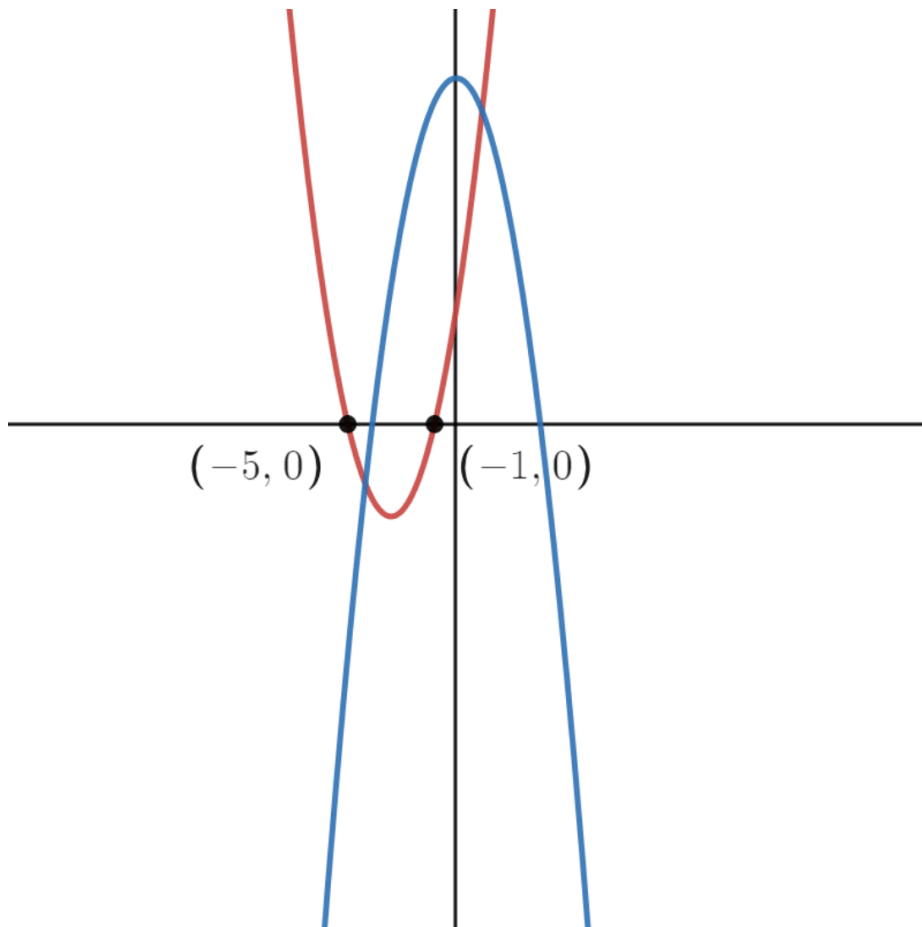Find d and e.

$x^2 + 3x - 5 = 0$

$2x^2 + 6x - 10 = 0$

$x^2 + 6x - 10 = -x^2$

$x^2 + 6x + 5 = -x^2 + 15$

$y = -x^2 + 15$

$(-5, 0)$ $(-1, 0)$

The graphs of these two quadratics can be used to solve
$$x^2 + 3x - 5 = 0$$

The red quadratic is of the form $ax^2 + bx + c$

| (1) | Find the equation of the red quadratic. |

$$a(x+3)(x-1) = a(x^2 + 2x - 3)$$
$$(0, -6) \Rightarrow a = 2 \qquad 2x^2 + 4x - 6 \qquad \underline{\underline{b = 4, c = -6}}$$

| (2) | The blue quadratic is of the form $-x^2 + dx + e$. |

Find d and e.

$$x^2 + 3x - 5 = 0$$
$$3x^2 + 9x - 15 = 0$$
$$2x^2 + 9x - 15 = -x^2$$
$$2x^2 + 4x - 15 = -x^2 + 5x$$
$$2x^2 + 4x - 6 = -x^2 + 5x + 9$$

$$y = -x^2 + 5x + 9$$

$(-3, 0)$ $(1, 0)$

$(0, -6)$