More Quadratic Equations and Inequalities Revision

(a)

Solve
$x^2 + x - 20 = 0$

$x = -5 \text{ or } x = 4$

(b)

Solve, by completing the square,
$x^2 + 6x + 3 = 0$
giving answers in surd form

$x = -3 \pm \sqrt{6}$

(c)

Solve
$(x + 3)(x - 5) > 0$

$x < -3 \text{ or } x > 5$

(d)

Solve
$3x^2 - 11x - 7 = 0$
giving your answers to 3 significant figures

$x = 4.22 \text{ or } x = -0.553$

(e)

Solve
$x^2 \leq 25$

$-5 \leq x \leq 5$

(f)

Solve
$5x^2 + 18x = 8$

$x = \frac{2}{5} \text{ or } x = -4$

(g)

Solve
$y = x + 1$
$y = x^2 + 5x - 11$

$x = -6, y = -5$
or
$x = 2, y = 3$

(h)

Solve
$2x^2 - 13x + 10 < 0$

$\frac{3}{2} < x < 5$

(i)

The area of a triangle with base $(x + 9)$ cm and height $(2x + 1)$ cm is $21\ cm^2$. Find the value of x.

$x = 1.5\ cm$

(j)

A rectangle has a length of $(x - 6)$ cm and a width of $4x$ cm. The area of the rectangle is less than $13\ cm^2$. Find the range of possible values of x.

$6 < x < 6.5$

(k)

Solve
$x + 2y = 7$
$x^2 + y^2 = 10$

$x = 1, y = 3$
or
$x = \frac{9}{5}, y = \frac{13}{5}$