

Factor the following quadratic:

$$2x^2 + 11x + 15$$

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 $\begin{array}{r} 30x^2 \\ \hline 5x \quad 6x \\ \hline 11x \\ + \end{array}$

$\begin{array}{r} 2x \quad 5 \\ \hline x \quad 3 \\ \hline \end{array} \begin{array}{|c|c|} \hline 2x^2 & 5x \\ \hline 6x & 15 \\ \hline \end{array}$

$$(2x+5)(x+3)$$

Factor the following quadratic:

$$3x^2 + 4x - 4$$

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 $\begin{array}{r} -12x^2 \\ \hline -2x \quad 6x \\ \hline 4x \\ + \end{array}$

$\begin{array}{r} x \quad 2 \\ \hline 3x \quad -2 \\ \hline \end{array} \begin{array}{|c|c|} \hline 3x^2 & 6x \\ \hline -2x & -4 \\ \hline \end{array}$

$$(x+2)(3x-2)$$

Factor the following quadratic:

$$4x^2 - 21x + 20$$

~~$$\begin{array}{r} 80x^2 \\ -5x \quad -16x \\ -21x \end{array}$$~~

	$x$	$-4$
$4x$	$4x^2$	$-16x$
$-5$	$-5x$	$20$

Factor the following quadratic:

$$x^2 + 36 = 13x$$

$$\begin{array}{r} -13x \quad -13x \\ \hline \end{array}$$

$$x^2 - 13x + 36 = 0$$

~~$$\begin{array}{r} 36x^2 \\ -4x \quad -9x \\ -13x \end{array}$$~~

	$x$	$-4$
$x$	$x^2$	$-4x$
$-9$	$-9x$	$36$

$$(x-9)(x-4) = 0$$

$$x-9=0 \quad x-4=0$$

$$x=9 \quad x=4$$

$$x = \{4, 9\}$$

Factor the following quadratic:

$$3x^2 - 33x + 72 = 0$$

$$3(x^2 - 11x + 24) = 0$$

$$\begin{array}{r} 24x^2 \\ -8x \quad -3x \\ \hline -11x \end{array}$$

$$\begin{array}{r} x \quad -8 \\ x^2 \quad -8x \\ -3 \quad 24 \\ \hline -3x \quad 24 \end{array}$$

$$3(x-3)(x-8) = 0$$

$$3(x-3) = 0 \quad x-8 = 0$$
$$x-3 = 0 \quad x = 8$$
$$x = 3 \quad x = 8$$
$$x = \{3, 8\}$$