FACTORING USING THE SWING METHOD

Factor the expression $6x^2 - 11x - 7$

STEP 1 Factor out the GCF if possible

No GCF

STEP 2 Multiply a and c

a	c	$a \times c$
6	-7	-42

STEP 3 Write out the factors of $a \times c$. Find the two factors that add up to b.

Factors of $a \times c$		Sum of Factors
1	-42	-41
2	-21	-19
3	**-14**	**-11**
6	-7	-1

STEP 4 Construct two factors as follows where f_1 and f_2 are the two factors identified in step 3.

$$(x + \frac{f_1}{a})(x + \frac{f_2}{a})$$

Then simplify the fractions if possible.

For our example the interim factors are

$$(x + \frac{3}{6})(x - \frac{14}{6})$$

Simplified

$$(x + \frac{1}{2})(x - \frac{7}{3})$$

STEP 5 Swing the denominator of any remaining fractions in front of the x. This leaves us with

$$(2x + 1)(3x - 7)$$

Factor the expression $10x^2 + 13x - 3$

STEP 1 Factor out the GCF if possible

STEP 2 Multiply a and c

a	c	$a \times c$

STEP 3 Find the factors of $a \times c$ that add up to b.
You can use the calculator to help you. Enter the expression $a \times c/x$ into y_1. Check the table. You now have a list of the factors of $a \times c$. You're only interested in the table entries in which x and y_1 are both integers.

STEP 4 Create your two factors using the factors of $a \times c$ you found in step 3.

$$(x \quad)(x \quad)$$

Divide each constant by a and simplify the fraction.

$$(x \quad)(x \quad)$$

STEP 5 Swing the denominator of any remaining fractions in front of the x.

$$(\quad)(\quad)$$

Factor the following expressions

1. $6x^2 + 7x + 2$

2. $6x^2 + 10x + 4$

3. $3x^2 - 20x + 28$

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