

Write in standard form.

Standard form is $ax^2 + bx + c$

Step 1



SN:

Exponents decrease

Ex: $28p^2 + 8p^3 - 60p$

$8p^3 + 28p^2 - 60p$

Factor out the GCF.

Step 2



$8p^3 + 28p^2 - 60p$

SN: -GCF-

Greatest Common Factor

- Keep the sign with coefficient

$4p(2p^2 + 7p - 15)$

$a=2$

$b=7$

$c=-15$

Multiply $a \cdot c$

Step 3



SN: We will not use GCF.

$2p^2 + 7p - 15$

$2 \cdot 15 = -30$

$a=2$

$b=7$

$c=-15$

$a \cdot c = 2 \cdot -15 = -30$

Find all factors of $a \cdot c$. Find all factors of

Step 4

-30

- $1 \cdot -30$
- $-1 \cdot 30$
- $2 \cdot -15$
- $-2 \cdot 15$
- $3 \cdot -10$
- $-3 \cdot 10$
- $5 \cdot -6$
- $-5 \cdot 6$

All the possible factors that will give the answer of -30 .

Find factors of $a \cdot c$ that when add gives you b . Step 5
 Look at the factors of -30 and find two that
 add up to be (7) .

$$1 + -30 = -29$$

$$-1 + 30 = 29$$

$$2 + -15 = -13$$

$$-2 + 15 = 13$$

$$3 + -10 = -7$$

$$-3 + 10 = 7$$

$$5 + -6 = -1$$

$$-5 + 6 = 1$$

SN: Factors = f $a = 2$

$f_1 = \text{factor 1} = -3$ $b = 7$

$f_2 = \text{factor 2} = 10$ $c = -15$

Use $a, f_1, + f_2$ to write out simplified fraction. Step 6

Use $2, -3 + 10$ to write out simplified fraction.

$$\frac{a}{f_{1 \text{ or } 2}} = \frac{\text{value } a}{\text{factor 1 or factor 2}}$$

$$\frac{a}{f_1} = \frac{2}{-3}$$

↑
simplified

$$\frac{a}{f_2} = \frac{2}{10} = \frac{1}{5}$$

↑
simplified

2 fractions, 1 for each factor

Use the fractions from Step 6 to write binomials Step 7

SN: Add an x to the numerator

$$\frac{2x}{-3} = (2x - 3)$$

1st binomial

$$\frac{1x}{5} = (x + 5)$$

1st binomial

2nd binomial

Factored Form = GCF (numerator \pm denominator) (numerator \pm denominator)

Factored Form $\rightarrow 4p(2x - 3)(x + 5)$

SN: Keep sign with the term it is with. If in numerator stays with those values.

Factoring Quadratics