Factoring Using the Distributive Property

(UN-DISTRIBUTING)

$5xy(3x^2y + 2) \xrightarrow{\text{Dist.}} 15x^3y^2 + 10xy$

$15x^3y^2 + 10xy \xrightarrow{\text{Factor}} 5xy(3x^3y + 2x)$

1) Find the GCF (greatest common factor)

2) Divide by GCF to see what is left in the ( )

3) Distribute to check your answer

Factor the GCF.

1. $12a^2 + 16a$

$4a \quad 4a$ gcf = $4a$, ÷ $4a$ out

gcf → $4a(3a + 4)$

2. $21cd^2 + 12c^2d + 6cd$

gcf = $3cd$

$3cd \quad 3cd \quad 3cd$

gcf → $3cd(7d + 4c + 2)$

5) $-16x^4 - 4x^3 + 12x^2$ ★

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

$\frac{-16x^4}{-4x^2} \quad \frac{-4x^3}{-4x^2} \quad \frac{12x^2}{-4x^2}$

3. $9x^2 + 36x^3$ (smallest exp)

$9x^2 \quad 9x^2$ gcf = $9x^2$, ÷ $9x^2$ out

$9x^2(1 + 4x)$

4. $16xz - 40xz^2$

$8xz \quad 8xz$ ÷ $8xz$ out

$8xz(2 - 5z)$

6) $3(x - 2) + y(x - 2)$

common factor

$(x-2)(3+y)$ ← leftovers

Distribute to check!!