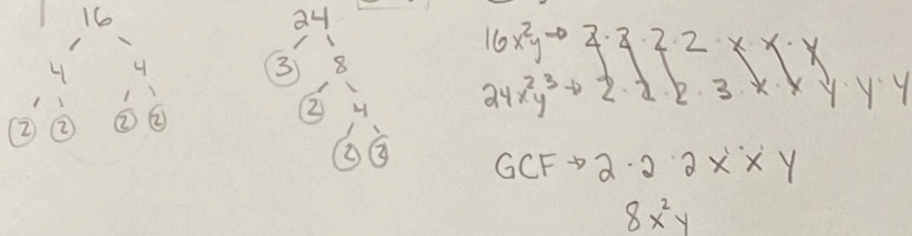


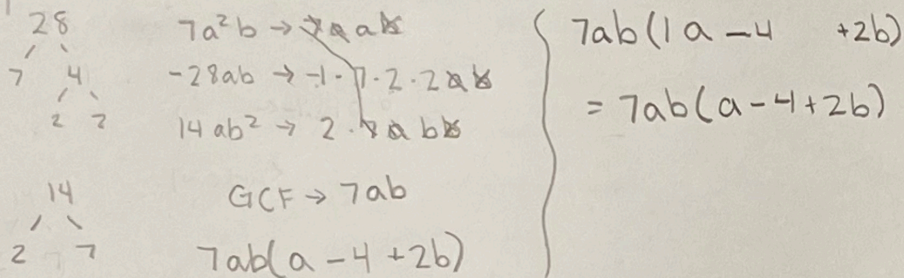
Example 1 Determine the Greatest Common Factor

Determine the GCF of $16x^2y$ and $24x^2y^3$.



Example 2 Write a Polynomial in Factored Form

Write $7a^2b - 28ab + 14ab^2$ in factored form.



Example 3 Determine Binomial Factors

Write each expression in factored form.

a) $3x(x-4) + 5(x-4)$

b) $y^2 + 8xy + 2y + 16x$

a) $(x-4)(3x+5)$

b) $[y^2 + 2y][8xy + 16x]$
 $y(y+2) + 8x(y+2)$
 $(y+2)(y+8x)$

$3x(x-4) + 5(x-4)$
 $3x^2 - 12x + 5x - 20$
 $\rightarrow 3x^2 - 7x - 20$
 $(x-4)(3x+5)$
 $3x^2 + 5x - 12x - 20$
 $\rightarrow 3x^2 - 7x - 20$

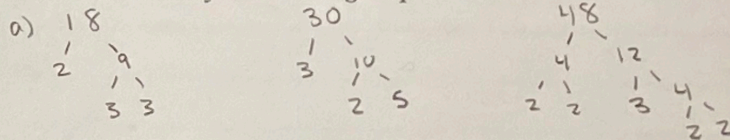
check.
 $y^2 + 8xy + 2y + 16x$

Example 4 Using the Greatest Common Factor to Solve a Problem



Paula has 18 toonies, 30 loonies, and 48 quarters. She wants to group her money so that each group has the same number of each coin and there are no coins leftover.

- a) What is the maximum number of groups she can make?
- b) How many of each coin will be in each group?
- c) How much money will each group be worth?



$18: 2 \cdot 3 \cdot 3$

$30: 2 \cdot 3 \cdot 5$

$48: 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$

GCF $\rightarrow 2 \cdot 3$

$= 6$ groups

b) $18 \text{ toonies} \div 6 \text{ groups} = 3 \text{ toonies}$

$30 \text{ loonies} \div 6 \text{ groups} = 5 \text{ loonies}$

$48 \text{ quarters} \div 6 = 8 \text{ quarters}$

c) $3 \times 2 = \$6$

$5 \times 1 = \$5$

$8 \times 0.25 = \$2$

$\$13/\text{group}$

