



Ex: Factor the expression completely.

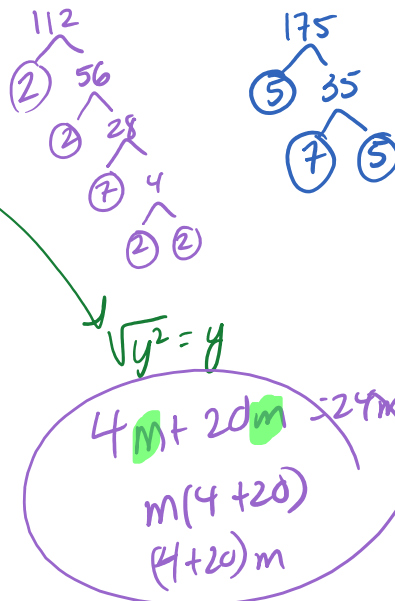
(a)  $2ax + 4ay - bx - 2by$   
 $2a(x+2y) - b(x+2y)$   
 $2am - bm = m(2a-b)$   
 $= (x+2y)(2a-b)$  or  $(2a-b)(x+2y)$   
 $= 2ax - bx + 4ay - 2by$

$ax^2 + bx + c$   
 (b)  $8x^2 - 10x - 3$   
 $a=8$   $b=-10$   $c=-3$   
 $ac$  product:  $ac = 8(-3) = -24$   
 Natural number factors:  
 $+1$   $-24 = -24$   
 $+2$   $-12 = -10$   
 $+3$   $-8 = -5$   
 $+4$   $-6 = -2$   
 last sign is -  
 ① signs in (X) are different  
 ② Subtract to get b  
 Subtract to get -10  
 $8x^2 + 2x - 12x - 3$   
 $= 2x(4x+1) - 3(4x+1)$   
 $= (2x-3)(4x+1)$  or  $(4x+1)(2x-3)$   
 $ab = ba$



Ex: Simplify the expression. Assume that the variable represents a positive number so that no absolute value symbols are needed.

$y\sqrt{4} \sqrt{4} \sqrt{7y}$   
 $= y\sqrt{2 \cdot 2} \sqrt{2 \cdot 2} \sqrt{7y}$   
 $= y(2)(2)\sqrt{7y}$   
 $= 4y\sqrt{7y} + 20y\sqrt{7y}$   
 $= 24y\sqrt{7y}$



$\sqrt[3]{3 \cdot 3 \cdot 3 \cdot 7 \cdot 7 \cdot 7 \cdot y \cdot y \cdot y} = 3y\sqrt[3]{49}$

$\sqrt[7]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3} = 2^7 \sqrt[7]{2^2 \cdot 3^6}$

$$\left(\frac{a}{b}\right)\left(\frac{b}{c}\right) = \frac{ab}{bc} = \frac{a}{c}$$

$$\frac{a}{a} = 1$$

$$\textcircled{1} \frac{2x^2 - 11x - 21}{x^2 - 49}$$

$$\textcircled{2} \frac{(2x+3)(x-7)}{(x-7)(x+7)} \cdot \frac{(3x+1)}{(2x+3)(x+4)} = \frac{3x+1}{(x+7)(x+4)}$$

$$\frac{a}{b} \div \frac{c}{b}$$

fraction:  
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- ① = rewrite frac in numerator
- ② multiply by the reciprocal of frac in denom.

$$\frac{\frac{a}{b}}{\frac{c}{b}}$$

$$\frac{(x+3)}{(x-4)} \div \frac{(x+2)}{(x-4)(x+1)} = \frac{(x+3)}{(x-4)}$$

$$= \frac{(x+3)}{(x-4)} \cdot \frac{(x-4)(x+1)}{(x+2)} = \frac{(x+3)(x+1)}{(x+2)}$$