$$a^3 + b^3 = (a \pm b)(a^2 \mp ab + b^2)$$

opposite signs

$$a^3 - b^3 = (a - b)(a^2 \pm ab + b^2)$$

same as

$$27x^3 - 8y^3 = (3x - 2y)(9x^2 + 6xy + 4y^2)$$

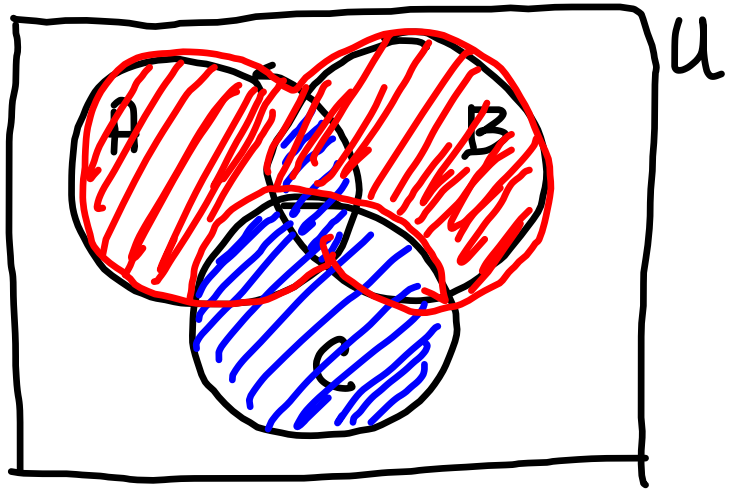
$a = 3x$

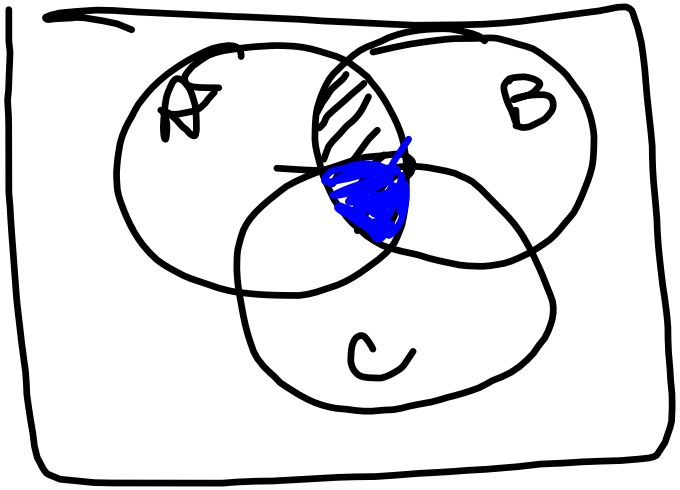
$b = 2y$

$(A \cap B) \cup C$

$(A \cup B) - C$

$(A \cap B) \cap C$





$2z^3 + 4z^2 - 30z$

$2z(z^2 + 2z - 15)$

$2z(z-3)(z+5)$

1st Check for GCF

p: -15

s: 2

$-3(+5)$

$x^2 + 5x - 3 = 0$

$+3 \quad +3$

$(x+b)^2 = x^2 + 2xb + b^2$

$2bx$

$b = \frac{5}{2}$

$b^2 = \left(\frac{5}{2}\right)^2 = \frac{25}{4}$

$x^2 + 5x + \frac{25}{4} = 3 + \frac{25}{4}$

$\sqrt{\left(x + \frac{5}{2}\right)^2} = \pm\sqrt{\frac{37}{4}}$

$x + \frac{5}{2} = \pm\frac{\sqrt{37}}{2}$

$-\frac{5}{2} \quad -\frac{5}{2}$

$x = -\frac{5}{2} \pm \frac{\sqrt{37}}{2}$

$= \frac{-5 \pm \sqrt{37}}{2}$

SQUARE ROOT PROPERTY

$\sqrt{x^2} = \pm\sqrt{a}$

$x = \pm\sqrt{a}$

$x = \sqrt{a}$ or $x = -\sqrt{a}$

$$x^2 - 9 = 0$$

$$(x-3)(x+3) = 0$$

$$x = 3, -3$$

$$x^2 - 9 = 0$$

$$+9 \quad +9$$

$$\sqrt{x^2} = \pm\sqrt{9}$$

$$x = \pm 3$$

$x = 3$ or $x = -3$

(ex) $x^2 + 4x + 4 = (x+2)^2$ $\quad b = \frac{4}{2} = 2$

$(x+2)(x+2)$ $\quad b^2 = 4$

$x^2 + 2x + 2x + 4$

$x^2 + 4x + 4$

(ex) $x^2 - 6x + 9 = (x-3)^2$

(ex) $x^2 + 2x + 1 = (x+1)^2$ $\quad b = \frac{2}{2} = 1$

(ex) $x^2 + 5x + \frac{25}{4} = (x+\frac{5}{2})^2$ $\quad b = \frac{5}{2}$

$b^2 = \frac{25}{4}$

$$x^2 + 6x - 3 = 0$$
$$+3 \quad +3$$

$$x^2 + 6x + 9 = 3 + 9$$

$$\sqrt{(x+3)^2} = \pm\sqrt{12}$$

$$x + 3 = \pm\sqrt{4 \cdot 3}$$

$$x + 3 = \pm 2\sqrt{3}$$
$$-3 \quad -3$$

$$x = -3 \pm 2\sqrt{3}$$

$b: \frac{6}{2} = 3$

$b^2 = 9$

$x = -3 + 2\sqrt{3}$ or $x = -3 - 2\sqrt{3}$

If you get $x = -3 \pm 6$

$x = -3 + 6$ or $x = -3 - 6$

$x = 3$ $\quad$ $x = -9$

$x^2 + 6x - 3 = 0$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$ax^2 + bx + c = 0$

$a = 1$

$b = 6$

$c = -3$

$x = \frac{-6 \pm \sqrt{36 - 4(1)(-3)}}{2}$

$= \frac{-6 \pm \sqrt{36 + 12}}{2}$

$= \frac{-6 \pm \sqrt{48}}{2}$

$= \frac{-6 \pm \sqrt{16 \cdot 3}}{2}$

$= \frac{-6 \pm 4\sqrt{3}}{2}$

$= \frac{2(-3 \pm 2\sqrt{3})}{2}$

$= -3 \pm 2\sqrt{3}$

1,350,000,000. write in Scientific Notation

1.35×10^{9}

.0000000324

3.24×10^{-7}

3.2
4.2
64
128
13.44

$(3.2 \times 10^{6})(4.2 \times 10^{-2})$

$(3.2)(4.2)(10^{6})(10^{-2})$

13.44×10^{4}

1.344×10^{5}

separate problem

$.323 \times 10^{6}$

3.23×10^{5}

$$x^2 x^3 = x^5$$

$$(x^2)^3 = x^6$$

$$\frac{x^3}{x^2} = x^1$$

$$= x$$

Long Division

$$15a^2b - 6a^5b^2 + 12a^2b^3 \div 3a^2b^3$$

$$\frac{15a^2b}{3a^2b^3} - \frac{6a^5b^2}{3a^2b^3} + \frac{12a^2b^3}{3a^2b^3}$$

$$\frac{5}{b} - \frac{2a^3}{b} + 4$$

$$\frac{b^2}{b^3} = b^{2-3} = b^{-1} = \frac{1}{b}$$

Divide $\dfrac{6a^2+5a+1}{2a+3}$

must be here

$$3a-2+\frac{7}{2a+3}$$

$$2a+3\overline{)\,6a^2+5a+1}$$

$$-6a^2\mp 9a$$

$$-4a+1$$

$$\pm 4a\pm 6$$

$$7$$

(26)

$$\frac{2a^3 - a^2 + 3a + 2}{2a+1}$$

$-a^2 - (a^2)$
$-a^2 + (-a^2)$
$-2a^2$

$$2a+1 \overline{)\, 2a^3 - a^2 + 3a + 2}$$

$a^2 - a + 2$ answer

$-2a^3 + a^2$

$-2a^2 + 3a$

$-2a^2 - a$

$4a + 2$

$4a + 2$

0

Rationalizing Denominators

(ex) $\frac{1}{\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) = \frac{\sqrt{2}}{2}$

(ex) $\frac{1}{\sqrt[3]{9}}\frac{\sqrt[3]{3}}{\sqrt[3]{3}} = \frac{\sqrt[3]{3}}{\sqrt[3]{27}} = \frac{\sqrt[3]{3}}{3}$

(ex) $\left(\frac{2}{\sqrt{5}+\sqrt{2}}\right)\left(\frac{\sqrt{5}-\sqrt{2}}{\sqrt{5}-\sqrt{2}}\right) = \frac{2\sqrt{5}-2\sqrt{2}}{5-2}$

$= \frac{2\sqrt{5}-2\sqrt{2}}{3}$

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$$\frac{x^2+8x+16}{x^2+x-12} \div \frac{x^2-16}{x^2-x-6}$$

$$: \frac{x^2+8x+16}{x^2+x-12} \cdot \frac{x^2-x-6}{x^2-16}$$

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

$$\frac{(x+2)}{(x-4)}$$