Describe the steps to solve. Do you notice an error?

$\sqrt{2x-35} = x$

$2x-35 = x^2$

$-x^2+2x-35=0$

$(x+7)(x-5)=0$

$x=-7 \quad x=5$

$-1(x^2-2x+35)$

Quadratic Formula

$-x^2 + 2x - 35$

$ax^2 + bx + c$

$a = -1 \quad b = 2 \quad c = -35$

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

$$= \frac{-(2) \pm \sqrt{(2)^2 - 4(-1)(-35)}}{2(-1)}$$

$$= \frac{-2 \pm \sqrt{4 - 140}}{-2}$$

$$= \frac{-2 \pm \sqrt{-136}}{-2} = \frac{-2 \pm i\sqrt{136}}{-2}$$

$+$ $-$

$-x^2 + 2x - 35 = 0$

$a = -1$

$b = 2$

$c = -35$

$ax^2 + bx + c$

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

$$= \frac{-(2) \pm \sqrt{(2)^2 - 4(-1)(-35)}}{2(-1)}$$

$$= \frac{-2 \pm \sqrt{4 - 140}}{-2}$$

$$= \frac{-2 \pm \sqrt{-136}}{-2} = \frac{-2 \pm i\sqrt{136}}{-2}$$

$+$ $-$

$$ax^2+bx+c=0$$

$$-x^2+2x-35=0 \qquad a=-1,\ b=2,\ c=-35$$

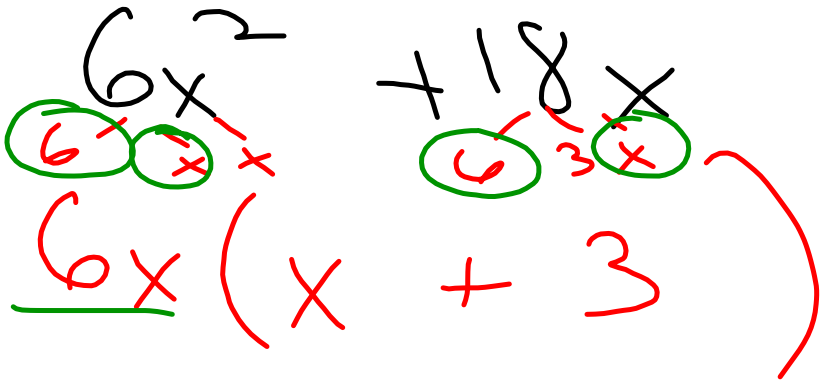
$$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$$

$$\frac{-(2)\pm\sqrt{(2)^2-4(-1)(-35)}}{2(-1)}$$

$$\frac{-2\pm\sqrt{4-140}}{-2}$$

$$\frac{-2\pm\sqrt{-136}}{-2}=\frac{-2\pm i\sqrt{136}}{-2}$$

$+$ $-$


$6x^2 + 18x$
6 x
6 3 x
$6x(x + 3)$

$3x^3 + 5x^2 - 12x - 20$

$x^2(3x+5) - 4(3x+5)$

$(x^2-4)(3x+5)$

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

$x^4 + 5x^2 + 4$

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

4 and 1 add to 5, multiply to 4

$x^2 + 4 = 0$

$-4 \quad -4$

$\sqrt{x^2} = \sqrt{-4}$

$x = \pm 2i$

$3x^2 - 10x + 8$

AC method

$a = 3$
$b = -10$
$c = 8$

$3x^2 - 4x - 6x + 8$

3 · 8
AC
24

1, 24
2, 12
3, 8
4, 6

-4 -6 -10

b

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

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

$x^3 - 27$

$x \cdot x \cdot x \quad 3 \cdot 3 \cdot 3$

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

Same
Opp
Always
Positive

50 $9y^2 - 900$ GCF

$9(y^2 - 100)$ Diff of □

$y \cdot y$ $10 \cdot 10$

$9(y+10)(y-10)$

53 $12a^2 + 36a + 27$ GCF

$2 \cdot 2 \cdot 3 \cdot a \cdot a \quad 2 \cdot 2 \cdot 3 \cdot a \quad 3 \cdot 3 \cdot 3$

$3(4a^2 + 12a + 9)$ AC method

$3(4a^2 + 6a + 6a + 9)$

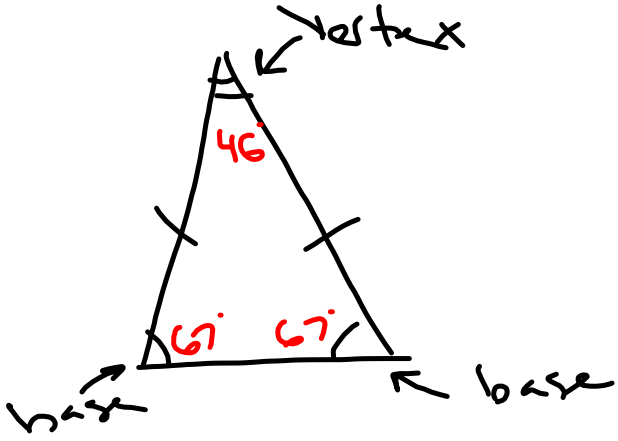
$3(2a(2a+3) + 3(2a+3))$

$3(2a+3)(2a+3)$

$3(2a+3)^2$

36 → 6, 6 → 12

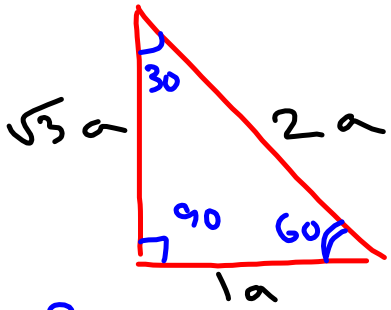
L12



$\frac{180-46}{2} = \frac{134}{2} = 67$

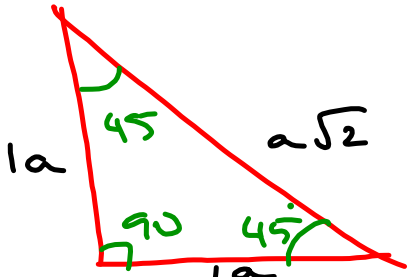
1 $\sqrt{3}$ 2

1.67....



30-60-90

1 $\sqrt{3}$ 2



45-45-90

$a^2+5^2=c^2$

$(1a)^2+(1a)^2=c^2$

a^2+a^2

$\sqrt{2a^2}=\sqrt{c^2}$

$a\sqrt{2}=c$

$6x^2 + 18x$

GCF

$2 \cdot 3 \cdot x$

$6x(x + 3)$

$3x^3 + 5x^2 - 12x - 20$ Grouping

$2 \cdot 2 \cdot 3 \cdot x \quad 2 \cdot 2 \cdot 5$

$x^2(3x+5) - 4(3x+5)$

$(x^2 - 4)(3x+5)$

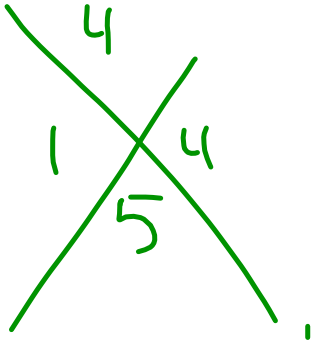
$x \cdot x \quad 2 \cdot 2$

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

$x^4 + 5x^2 + 4$

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

$(x+10)(x-4)$



$x^2 + 4 = 0$

$\pm 4 \quad \pm 4$

$\sqrt{x^2} = \sqrt{-4}$

$x = \pm 2i$

$a \neq 1$

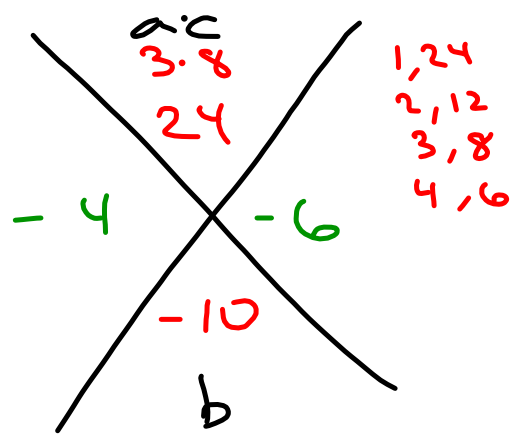
AC Method

$3x^2 - 10x + 8$

$3x^2 - 4x - 6x + 8$

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

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



$x^3 - 27$

$x \cdot x \cdot x \quad 3 \cdot 3 \cdot 3$

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

$(x-3)(x^2+3x+9)$

Same
Opp
Always
Positive

50) $9y^2 - 900$ GCF

$9(y^2 - 100)$ Diff of □

$y \cdot y$ $10 \cdot 10$

$9(y+10)(y-10)$

53

$12a^2 + 36a + 27$ GCF

$2 \cdot 2 \cdot 3 \cdot a \cdot a \quad 2 \cdot 2 \cdot 3 \cdot a \quad 3 \cdot 3 \cdot 3$

$3(4a^2 + 12a + 9)$ AC method

$4a^2 + 6a + 6a + 9$

$2a(2a+3) + 3(2a+3)$

$3(2a+3)(2a+3)$

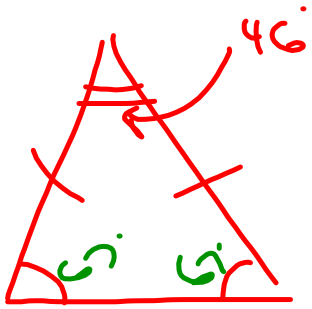
$3(2a+3)^2$

a·c: 4·9 = 36

6 + 6 = 12

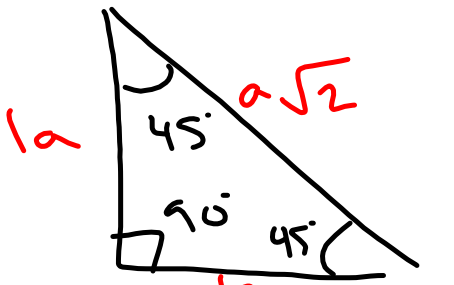
1, 36
2, 18
3, 12
4, 9
6, 6

42



$\frac{180-46}{2} = \frac{134}{2}$

base $\angle = 67°$



45-45-90

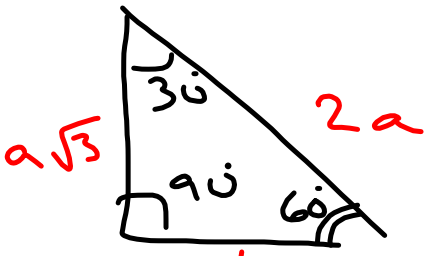
1 1 $\sqrt{2}$

$a^2 + b^2 = c^2$

$1^2 + 1^2 = c^2$ $c = \sqrt{2}$

$1 + 1$

$\sqrt{2} = \sqrt{2}$

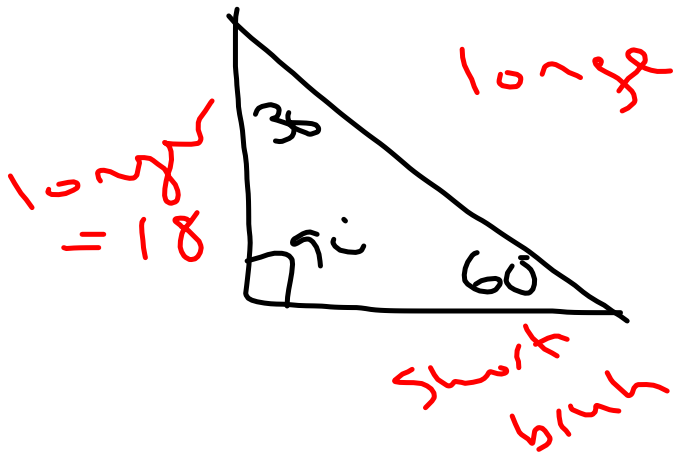


30-60-90

1 $\sqrt{3}$ 2

1.73...

44



$a\sqrt{3} = 18$

$6x^2 + 18x$

GCF

$2 \cdot 3 \cdot x$ $\quad 2 \cdot 3 \cdot 3$

$6x(x + 3)$

$3x^3 + 5x^2 - 12x - 20$

$3x \cdot x^2 \quad 5 \cdot x^2 \quad 3 \cdot 2 \cdot x \quad 2 \cdot 2 \cdot 5$

$x^2(3x+5) - 4(3x+5)$

$(x^2-4)(3x+5)$

$x \cdot x \quad 2 \cdot 2$

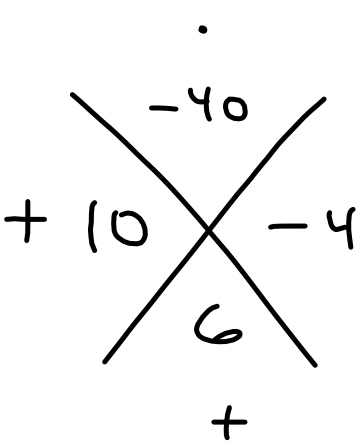
Diff of $\square$

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

$x^2 + 6x - 40$

$a = 1$

$(x+10)(x-4)$



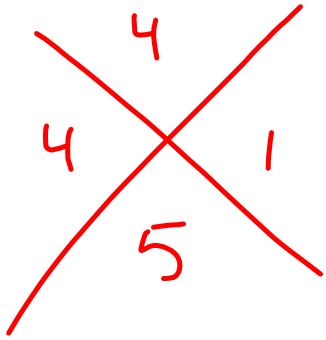
1, 40
2, 20
10, 4
5, 8

$(x+10)(x-4)$

$x^4 + 5x^2 + 4$

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

$x \quad x \quad 2 \quad 2$



$x^2 + 4 = 0$

$-4 \quad -4$

$\sqrt{x^2} = \sqrt{-4}$

$x = \pm 2i$

$3x^2 - 10x + 8$

$3x^2 - 4x - 6x + 8$

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

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

AC Method

$a \cdot c$
$3 \cdot 8$
24

$1, 24$
$2, 12$
$8, 3$
$4, 6$

-10

-4 $\quad -6$

b
$+$

$x^3 - 27$

$x \cdot x \cdot x \quad 3 \cdot 3 \cdot 3$

$a = x \quad b = 3$

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

Same

Opp

Always

Positive

50 $9y^2 - 900$ GCF

$9(y^2 - 100)$ Diff of □

$y \cdot y$ $10 \cdot 10$

$9(y+10)(y-10)$

53 $12a^2 + 36a + 27$ GCF

$2 \cdot 2 \cdot 3 \cdot a \cdot a \quad 2 \cdot 2 \cdot 3 \cdot a \quad 3 \cdot 3 \cdot 3$

$3(4a^2 + 12a + 9)$

AC Method

$4a^2 + 6a + 6a + 9$

$2a(2a+3) + 3(2a+3)$

$3(2a+3)(2a+3)$

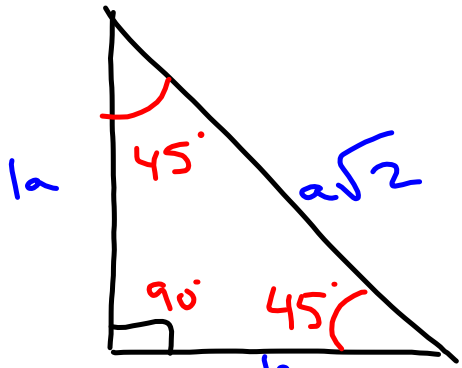
36, 6, 6, 12

42

$\frac{180 - 46}{2} = \frac{134}{2}$

base $= 67°$

$\angle$ = angle



45-45-90

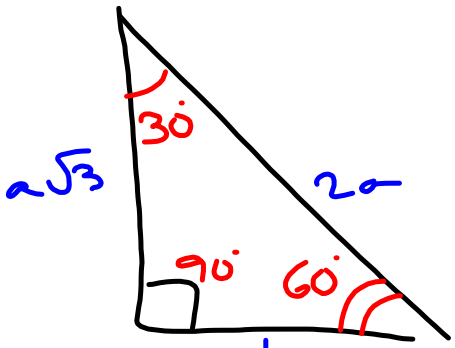
1 1 √2

$a^2+b^2=c^2$

$1^2+1^2=c^2$

$\sqrt{2}=\sqrt{c^2}$

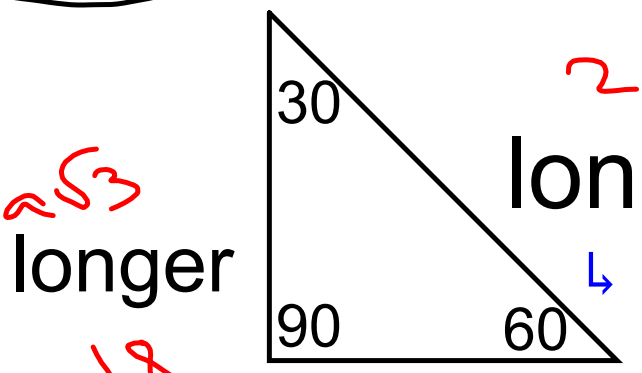
$\sqrt{2}=c$



30-60-90

1 √3 2

44



longer

longest

hypotenuse

short bruh

$2a = 12\sqrt{3}$

$a\sqrt{3}$

18

$1a = 6\sqrt{3}$

$2 \cdot 6\sqrt{3}$

$12\sqrt{3}$

$2 \cdot a$

$$\frac{18}{\sqrt{3}} = \frac{a\sqrt{3}}{\sqrt{3}}$$

$$a = \frac{18 \cdot \sqrt{3}}{\sqrt{3}} \cdot \sqrt{3} = \frac{18\sqrt{3}}{3}$$

3

$a = 6\sqrt{3}$

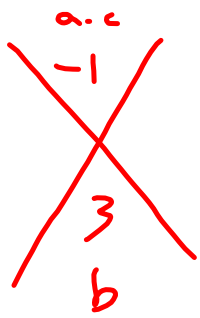
$x^3 + 3x^2 - x$

$x \cdot x \cdot x$ $\quad 3 \cdot x \cdot x$ $\quad -1 \cdot x$

$x(x^2 + 3x - 1)$

$ax^2 + bx + c$

What do they share?



1, -1

$$\frac{6x^2}{6x} + \frac{18x}{6x}$$

$$6x(x + 3)$$

$3x^3 + 5x^2 - 12x - 20$

$-4 \cdot 3x \quad -4 \cdot 5$

$x^2 \quad x^2 \quad -4 \quad -4$

$x^2(3x + 5) - 4(3x + 5)$

$(x^2 - 4)(3x + 5)$

$$\frac{2x^3}{2} + \frac{8x^2}{2} - \frac{18x}{2} - \frac{72}{2}$$

$$2(x^3 + 4x^2 - 9x - 36)$$

$\vdots$

Diff. of $\square$

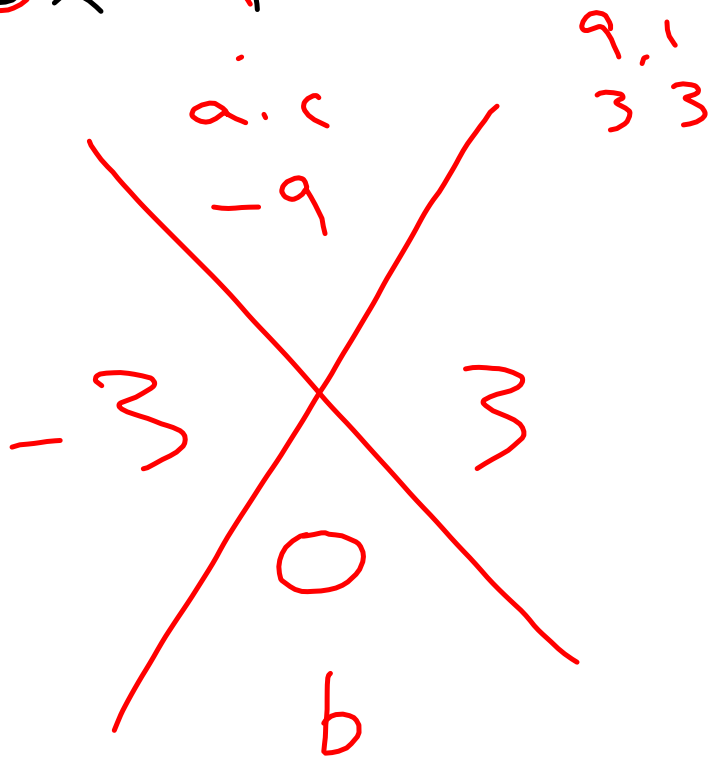
$$x^2 - 9$$

$x \cdot x \quad 3 \cdot 3$

$$(x+3)(x-3)$$

$ax^2 + bx + c$

$1x^2 + 0x - 9$

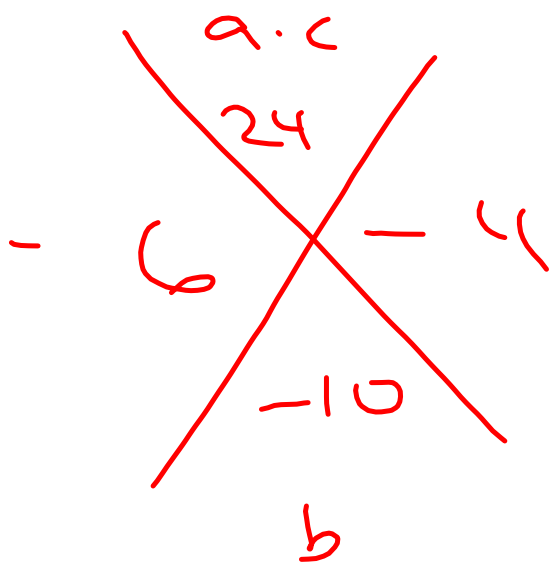


$(x-3)(x+3)$

$3x^2 - 10x + 8$

AC method

1, 24
6 4
12, 2



$3x^2 - 6x - 4x + 8$
-4

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

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

$3x^2 - 10x + 8$

AC method

multiply a·c

24

-6 -4

-10

1, 24
6, 4
12, 2

b

Add

$(x - \frac{6}{3})(x - 4)$

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

§5 (30)

$3b - a = -7$

$5a + 6b = 14$

Solve for a.

$3b - a = -7$

$+a \quad +a$

$3b = a - 7$

$+7 \quad +7$

$a = 3b + 7$

Substitute for a in next eq.

$5(3b+7) + 6b = 14$

$15b + 35 + 6b = 14$

$21b + 35 = 14$

$-35 \quad -35$

$\frac{21b}{21} = \frac{-21}{21}$

$b = -1$

Solve for a

$3(-1) - a = -7$

$-3 - a = -7$

$+a \quad +a$

$-3 = -7 + a$

$+7 \quad +7$

$a = 4$

$x^3 + 3x^2 - x$

$x \cdot x \cdot x \quad 3 \cdot x \quad -1$

GCF

"what do they share?"

$x(x^2 + 3x - 1)$

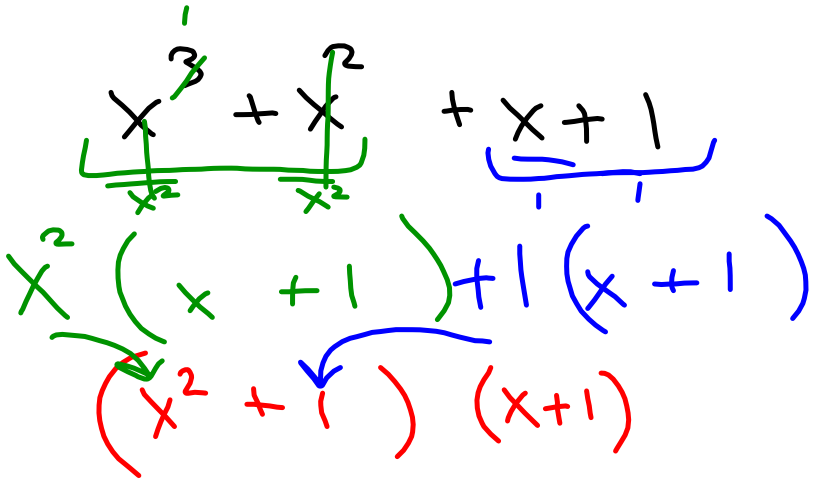
$x^3 + 3x^2 - x$

$x(x^2 + 3x - 1)$

$6x^2 + 18x$

$6 \cdot 1 \cdot x \cdot x \quad 2 \cdot 3 \cdot 3 \cdot x$

$6x(x + 3)$


$x^3 + x^2 + x + 1$
x^2
x^2
$x^2(x+1)+1(x+1)$
$(x^2+1)(x+1)$

$3x^3 + 5x^2 - 12x - 20$

$x^2(3x+5) - 4(3x+5)$

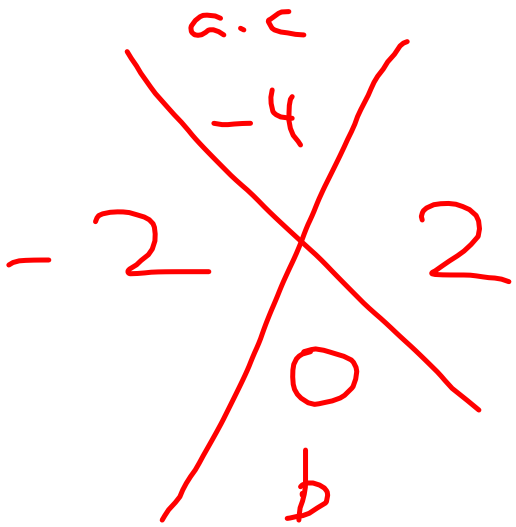
Diff. of □ $(x^2-4)(3x+5)$

$x \cdot x \quad 2 \cdot 2$

$(x+2)(x-2)$

$ax^2 + bx + c$ $a = 1$ BIG X

$1x^2 + 0x - 4$



$(x-2)(x+2)$

$3x^2 - 10x + 8$ $a \neq 1$ AC method

a·c

24

-6 -4

-10

b

1, 24
2, 12
3, 8
6, 4

$(x - \frac{6}{3})(x - \frac{4}{3})$

no

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

$3x^2 - 6x - 4x + 8$

$3x \quad -2 \quad -4 \quad -2$

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

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

$x^3 + 3x^2 - x$

$x \cdot x \cdot x$ $\quad 3 \cdot x$ $\quad -1 \cdot x$

$x(x^2 + 3x - 1)$

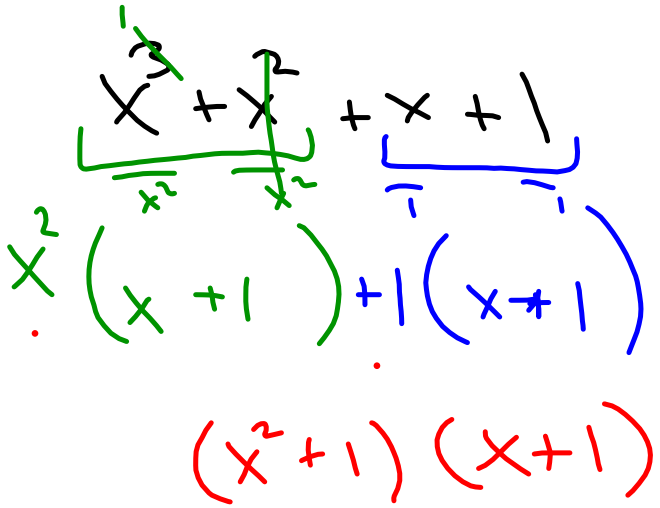
"What do they share?"

$\frac{x^3}{x} + \frac{3x^2}{x} - \frac{x}{x}$

$x(x^2 + 3x - 1)$

$6x^2 + 18x$

$6x(x + 3)$


$x^3 + x^2 + x + 1$
x^2
x^2
1
1
$x^2(x+1) + 1(x+1)$
$(x^2+1)(x+1)$

$1x^2 + 6x - 40$

$ax^2 + bx + c$

$a \cdot c$

-40

-4 $\quad$ 10

6

b

$40, 1$

$2, 20$

$4, 10$

$5, 8$

$a = 1$

$(x-4)(x+10)$

$3x^2 - 10x + 8$

$a \neq 1$

a · c

24

-6 -4

-10

6, 4

2, 12

3, 8

$\left(x - \frac{6}{3}\right)\left(x - \frac{4}{3}\right)$

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

$3x^2 - 10x + 8$

$3x^2 - 6x - 4x + 8$

$3x \quad -2 \quad -4 \quad -2$

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

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

$x^3 - 27$

$x \cdot x \cdot x$ $\quad$ $3 \cdot 3 \cdot 3$

$a = x$ $\quad$ $b = 3$

SOAP

Same Opposite Always Positive

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

$(x - 3)(x^2 + 3x + 9)$

19) $\sqrt{\frac{20}{27}} = \frac{\sqrt{20}}{\sqrt{27}}$

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

$= \frac{2\sqrt{15}}{9}$

Simplify radicals

$2\sqrt{20} = 2\sqrt{5}$ (20 = 4 · 5; 4 = 2 · 2)

$3\sqrt{27} = 3\sqrt{3}$ (27 = 9 · 3; 9 = 3 · 3)