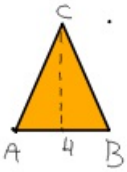
$$\frac{9}{4}x^6 - \frac{3}{4}x^5y + \frac{1}{16}x^4y^2 = \left(\frac{3}{2}x^3 - \frac{1}{4}x^2y\right)^2$$

$$\left(-\frac{3}{2}x^3 + \frac{1}{4}x^2y\right)^2$$



$CH = 2x+3$

$AB = 2(2x+3)+3$

$$A = \frac{[2(2x+3)+3]\cdot(2x+3)}{2}$$

$$= \frac{[4x+6+3]\cdot(2x+3)}{2}$$

$$= \frac{[4x+9]\cdot(2x+3)}{2}$$

$$= \frac{[8x^2+30x+27]}{2}$$

$$= 4x^2+15x+\frac{27}{2}$$

No

$$\frac{2+3}{2} = 3$$

$$\frac{5}{2}$$

$$\left(-\frac{3}{2}x+2y\right)^3 =$$

$$\left(\frac{3}{2}x\right)^3 + 3\cdot\left(-\frac{3}{2}x\right)^2\cdot 2y + 3\cdot\left(-\frac{3}{2}x\right)\cdot(2y)^2 + (2y)^3$$

$$-\frac{27}{8}x^3 + \frac{54}{4}x^2y + -\frac{36}{2}xy^2 + 8y^3$$

$$-\frac{27}{8}x^3 + \frac{27}{2}x^2y - 18xy^2 + 8y^3$$

$$(2a^2+b+4)\cdot(2a^2-b-4) =$$

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

$a = 2a^2$

$b = (b+4)$

$$(\underbrace{2a^2}_{a}+\underbrace{(b+4)}_{b})\cdot(\underbrace{2a^2}_{a}-\underbrace{(b+4)}_{b})$$

$$(2a^2)^2 - (b+4)^2 = 4a^4 - (b^2+8b+16)$$

$$4a^4 - b^2 - 8b - 16$$

$$\frac{x^2}{4} + \frac{xy}{3} + \frac{y^2}{9} = \left(\frac{x}{2} + \frac{y}{3}\right)^2$$

$$= \left(-\frac{x}{2} - \frac{y}{3}\right)^2$$

$$\frac{xy}{3} \cdot \frac{1}{2} = \frac{xy}{6} \qquad \frac{y}{3}$$

$$\frac{\cancel{xy}}{\cancel{6}_{2}} \cdot \frac{\cancel{3}^{1}}{\cancel{y}_{1}} = \frac{x}{2}$$

$$\left(a + \frac{3}{2}b\right)^5$$

$$\begin{array}{c} 1 \\ 1 \quad 1 \\ 1 \quad 2 \quad 1 \\ 1 \quad 3 \quad 3 \quad 1 \\ 1 \quad 4 \quad 6 \quad 4 \quad 1 \\ 1 \quad 5 \quad 10 \quad 10 \quad 5 \quad 1 \end{array}$$

$$\left(a^5 + 5(a)^4\left(\frac{3}{2}b\right) + 10(a)^3\left(\frac{3}{2}b\right)^2 + 10(a)^2\left(\frac{3}{2}b\right)^3 +\right.$$

$$+ 5(a)\left(\frac{3}{2}b\right)^4 + \left(\frac{3}{2}b\right)^5$$

$$\frac{27 \cdot 3}{81} =$$

$$= a^5 + \frac{15}{2}a^4b + \cancel{10}^{5}a^3\left(\frac{9}{\cancel{4}_{2}}b^2\right) + \cancel{10}^{5}a^2\left(\frac{27}{\cancel{8}_{4}}b^3\right) + 5a\left(\frac{81}{16}b^4\right)$$

$$+ \frac{243}{32}b^5 =$$

$$= a^5 + \frac{15}{2}a^4b + \frac{45}{2}a^3b^2 + \frac{135}{4}a^2b^3 + \frac{405}{16}ab^4 +$$

$$+ \frac{243}{32}b^5$$

$$(a+b^2)^3 - b^4\left[3\left(a-\frac{1}{2}\right)+(b+1)(b-1)\right]+$$

$$+\left(-\frac{3}{2}\right)(a^2+b^2)^2 =$$

$$(a^3+b^6+3a^2b^2+3ab^4) - b^4\left[3a-\frac{3}{2}+(b^2-1)\right]+$$

$$+\left(-\frac{3}{2}\right)(a^4+b^4+2a^2b^2) =$$

$$= a^3 \cancel{+b^6} \cancel{+3a^2b^2} \cancel{+3ab^4} \cancel{-3ab^4} + \cancel{\frac{3}{2}b^4} \cancel{-b^6} \cancel{+b^4} +$$

$$+\left(-\frac{3}{2}a^4 - \cancel{\frac{3}{2}b^4} \cancel{-3a^2b^2}\right) =$$

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

$$-27x^3y^9 + z^6 + 27x^2y^6z^2 - 9xy^3z^4$$

$$(-3xy^3)^3 \longrightarrow (-3xy^3) \longrightarrow (-3xy^3)^2$$

$$z^6 = (z^2)^3 \longrightarrow z^2 \longrightarrow (z^2)^2$$

$$3a^2 \cdot b = 3 \cdot 9x^2y^6 \cdot z^2 = 27x^2y^6z^2$$

$$3 \cdot z^4 \cdot (-3xy^3) = -9xy^3z^4$$

$$-16a^4 + \frac{81}{4}x^2 = \left(-4a^2 + \frac{9}{2}x\right)\left(4a^2 + \frac{9}{2}x\right)$$

$$= \left(-4a^2 - \frac{9}{2}x\right)\left(4a^2 - \frac{9}{2}x\right)$$

$$x^2 - 2xy + y^2 = (x-y)^2 = (-x+y)^2$$

$$a^2 + 2ab + 2ac + 2bc + b^2 + c^2 = (a+b+c)^2 = (-a-b-c)^2$$