代数答案　Algebra　92点

4°. $$\frac{a^2(m^3+n^3)}{a(m^2-mn+n^2)} = \frac{a^2(m+n)(m^2-mn+n^2)}{a(m^2-mn+n^2)}$$

$$= a(m+n).$$

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$$\frac{(x^2-xy+y^2)(x^2+xy+y^2)}{x^2(x^2+xy+y^2)+xy(x^2+xy+y^2)+y^2(x^2+xy+y^2)}$$

$$= \frac{(x^2-xy+y^2)(x^2+xy+y^2)}{(x^2+xy+y^2)(x^2+xy+y^2)} = \frac{x^2-xy+y^2}{x^2+xy+y^2}.$$

5°. $$1-\frac{x}{3}-\frac{x^2}{4}\Big)\ 1-\frac{x}{2}\ \Big(1-\frac{x}{6}+\frac{7x^2}{36}+\frac{5x^3}{216}+\frac{73x^4}{1296}+\cdots$$

$$1-\frac{x}{3}-\frac{x^2}{4}$$

$$-\frac{x}{6}+\frac{x^2}{4}$$

$$-\frac{x}{6}+\frac{x^2}{18}+\frac{x^3}{24}$$

$$\frac{7x^2}{36}-\frac{x^3}{24}$$

$$\frac{7x^2}{36}-\frac{7x^3}{108}-\frac{7x^4}{144}$$

$$+\frac{5}{216}+\frac{7x^4}{144}$$

$$\frac{5}{216}-\frac{5x^4}{648}-\frac{5x^5}{864}$$

$$\frac{73x^4}{1296}+\frac{5x^5}{864}$$

$$\frac{73x^4}{1296}-\frac{73x^5}{3888}-\frac{73x^6}{5184}.$$

	$1-\frac{1}{2}$
$\frac{1}{3}$	$\frac{1}{3}\alpha+\frac{1}{3}\beta+\frac{1}{3}\gamma+\frac{1}{3}\delta+\frac{1}{3}\epsilon+$ &c.
$\frac{1}{4}$	$\frac{1}{4}\alpha+\frac{1}{4}\beta+\frac{1}{4}\gamma+\frac{1}{4}\delta+$ &c.
1	$\alpha+\beta+\gamma+\delta+\epsilon+$ &c.

$\therefore\ \alpha=1,\ \beta=-\frac{1}{2}+\frac{1}{3}=-\frac{1}{6},\ \gamma=-\frac{1}{6}\times\frac{1}{3}+\frac{1}{4}=\frac{7}{36},$

$\delta=\frac{1}{3}\times\frac{7}{36}+\frac{1}{4}\times-\frac{1}{6}=\frac{5}{216},\ \epsilon=\frac{1}{3}\times\frac{5}{216}+\frac{1}{4}\times\frac{7}{36}=\frac{73}{1296}.$

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$\therefore$ the quotient is

$$1-\frac{x}{6}+\frac{7x^2}{36}+\frac{5x^3}{216}+\frac{73x^4}{1296}+\cdots$$

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1°
$$\begin{array}{l} a^2 - x(2a-b) - b^2 \\ \underline{ax + b^2} \\ a^3x - ax^2(2a-b) - ab^2x \\ \underline{\qquad + a^2b^2 \qquad - b^2x(2a-b) - b^4} \\ a^3x + a^2b^2 - ax^2(2a-b) - b^2x(3a-b) - b^4 \end{array}$$

2° ~~In the dividend and divisor the power of x and ab occurs in regular order~~

1°
$$\begin{array}{l} a^2 - x(2a-b) - b^2 \\ \underline{ax + b^2} \\ a^3x - ax^2(2a-b) - ab^2x \\ \underline{\qquad + a^2b^2 \qquad - b^2x(2a-b) - b^4} \\ a^3x + a^2b^2 - ax^2(2a-b) - b^2x(3a-b) - b^4. \end{array}$$

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2° Change the order of the divisor, thus $x + 2ab$: and proceed according the method: thus

$$\begin{array}{r|l} & 3 + 4 - 6 - 4 \\ -2 & \underline{\quad -2\alpha - 2\beta - 2\gamma} \\ 1 & \alpha + \beta + \gamma + \delta \end{array}$$

Since 3 makes α, we can find the value $\alpha, \beta, \gamma, \delta$ namely, $\alpha = 3,\ \beta = -2 \quad \gamma = -2 \quad \delta = 0$ 15

$\therefore$ the quotient is $3x^2 - 2abx - 2a^2b^2 + 0.$

3°

From the given condition;

$$\begin{cases} x^2 = 1 \\ y^2 = 4 \\ z^2 = 9 \end{cases} \qquad \begin{cases} xy = -2 \\ yz = -6 \\ xz = 3 \end{cases}$$

Apply the values of x^2, y^2, z^2 &c. in their proper place

$$\frac{3(1) - 2(-2) + 5(4) + 5(9) + 2(-6) + 2(3)}{4(1) + 2(-2) + 3(4) + 2(9) + (-6) + (-3)}$$ 14

$$= \frac{66}{21} = 3\frac{1}{7} \text{ Ans.}$$

6. Apply the value of a, and b in the expression:

$$x^4 - (-x-0)x^3 + (x + (-x-0)0)x - 0$$
$$= x^4 + x^4 + 0 - 0 = 2x^4 = 2\left(\frac{1}{2}\right)^4$$
$$= \frac{2}{16} = \frac{1}{8}.$$

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7.

$$\frac{2x^3 - x^2 + x + 1}{2x^3 + 3x^2 + 3x + 1} = \frac{(2x+1)(x^2 - x + 1)}{(2x+1)(x^2 + x + 1)}$$
$$= \frac{x^2 - x + 1}{x^2 + x + 1}.$$

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3rd Grade e.

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