

Componendo – Dividendo:

$$\frac{a}{b} \xrightarrow{C \& D} \frac{a+b}{a-b}$$

$$\frac{a+b}{a-b} \xrightarrow{C \& D} \frac{a+b+a-b}{a+b-a+b} = \frac{\cancel{2a}}{\cancel{2b}}$$

coaching center

$$\frac{a^2+b^2}{a^2-b^2}$$

$\xrightarrow{C \& D}$

$$\frac{a^2}{b^2}$$

$$\frac{5}{3}$$

$\xrightarrow{C \& D}$

$$\frac{5+3}{5-3} = \frac{8}{2} = 4$$

$$\frac{\sqrt{a} + \sqrt{b}}{\sqrt{a} - \sqrt{b}}$$

$\xrightarrow{C \& D}$

$$\frac{\sqrt{a}}{\sqrt{b}}$$

coaching center

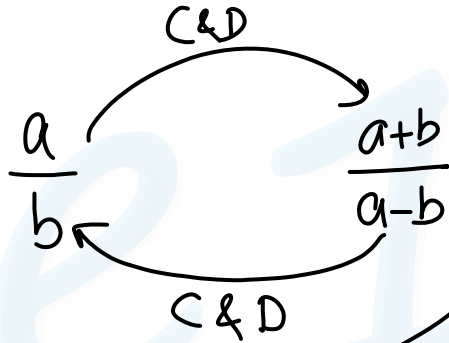
$$\frac{a+b}{a-b} = \frac{5}{3}$$

applying C & D both sides;

$$\frac{a}{b} = \frac{5+3}{5-3} = \frac{8}{2} = \frac{4}{1}$$

$$\frac{\cancel{a+b} + \cancel{a-b}}{\cancel{a+b} + \cancel{a-b}} = \frac{7a}{7b}$$

coaching center



$$\frac{x+y}{x-y} = ?$$

$$\frac{x}{y} = \frac{3}{2}$$

$$\frac{x+y}{x-y} = \frac{3+2}{3-2} = \frac{5}{1}$$

Concept:

$$\text{If } \frac{a}{b} = \frac{m}{n} \Rightarrow \frac{(a+b)}{(a-b)} = \frac{(m+n)}{(m-n)}$$

$$\text{If } \frac{(a+b)}{(a-b)} = \frac{x}{y} \Rightarrow \frac{a}{b} = \frac{(x+y)}{(x-y)}$$

$$\frac{a}{b} \rightleftharpoons \frac{a+b}{a-b}$$

318. $\frac{(\sqrt{3+x}+\sqrt{3-x})}{(\sqrt{3+x}-\sqrt{3-x})} = 2$ then x is equal to

$\frac{(\sqrt{3+x}+\sqrt{3-x})}{(\sqrt{3+x}-\sqrt{3-x})} = 2$ है तो x पता करें।

a) $\frac{5}{12}$

~~b) $\frac{12}{5}$~~

c) $\frac{5}{7}$

d) $\frac{7}{5}$

$$\frac{\sqrt{3+x}}{\sqrt{3-x}} = \frac{2}{1} \frac{2}{1}$$

$$\Rightarrow \frac{3}{x} = \frac{10}{8}$$

$$\Rightarrow \frac{24}{10} = x$$

319. $\frac{(\sqrt{x+4}+\sqrt{x-4})}{(\sqrt{x+4}-\sqrt{x-4})} = \frac{7}{3}$ then $\frac{x+2}{x-2}$ is equal to

$\frac{(\sqrt{x+4}+\sqrt{x-4})}{(\sqrt{x+4}-\sqrt{x-4})} = \frac{7}{3}$ है तो $\frac{x+2}{x-2}$ किसके समान होगा?

a) $\frac{17}{11}$

b) $\frac{79}{37}$

c) $\frac{11}{17}$

d) $\frac{37}{79}$

$$\frac{\sqrt{x+4}}{\sqrt{x-4}} = \frac{7}{3}$$

$$\frac{a}{b} \rightarrow \frac{a+b}{a-b}$$

$$\Rightarrow \frac{x}{4} = \frac{29}{21}$$

$$\Rightarrow \frac{x}{2} = \frac{58}{21}$$

$$\Rightarrow \frac{x+2}{x-2} = \frac{79}{37}$$

320. If $\frac{x}{y} = \frac{a+2}{a-2}$, then the value of $\frac{x^2-y^2}{x^2+y^2}$ is

अगर $\frac{x}{y} = \frac{a+2}{a-2}$, तो $\frac{x^2-y^2}{x^2+y^2}$ का मान:

a) $\frac{8a}{a^2+4}$

~~b) $\frac{4a}{a^2+4}$~~

c) $\frac{2a}{a^2+4}$

d) $\frac{4a}{a^2+2}$

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

$$\Rightarrow \frac{x^2+y^2}{x^2-y^2} = \frac{2(a^2+4)}{4 \cdot a \cdot 2}$$

coaching center

321. If $x = \frac{p+q}{p-q}$ and $y = \frac{p-q}{p+q}$, then $\frac{x-y}{x+y}$ is:

यदि $x = \frac{p+q}{p-q}$ और $y = \frac{p-q}{p+q}$ है, तो $\frac{x-y}{x+y}$ है :

a) $\frac{p^2+q^2}{2pq}$

b) $\frac{2pq}{p^2+q^2}$

c) $\frac{2pq}{p^2-q^2}$

d) $\frac{4pq}{p^2+q^2}$

$$\frac{x}{y} = \frac{(p+q)^2}{(p-q)^2}$$

$$\Rightarrow \frac{x+y}{x-y} = \frac{2(p^2+q^2)}{4 \cdot p \cdot q}$$

coaching center

322. If $A = \frac{1+2x}{1-2x}$ and $B = \frac{1-2x}{1+2x}$, then the value of $\frac{A+B}{A-B}$ is :

यदि $A = \frac{1+2x}{1-2x}$ और $B = \frac{1-2x}{1+2x}$ हो, तो $\frac{A+B}{A-B}$ का मान है :

- a) $x + \frac{1}{4x}$ b) $x - \frac{1}{4x}$ c) $\frac{1}{4x} - x$ d) $x^2 + \frac{1}{4x^2}$

$$\frac{A}{B} = \frac{(1+2x)^2}{(1-2x)^2}$$

$$\begin{aligned} & \frac{\cancel{2}(1+4x^2)}{4 \cdot 1 \cdot \cancel{2}x} \\ &= \frac{1}{4x} + x \end{aligned}$$

coaching center

323. If $x = \frac{\sqrt{3}}{2}$, then the value of $\frac{(\sqrt{1+x}+\sqrt{1-x})}{\sqrt{1+x}-\sqrt{1-x}}$ is

$$1+x = 1 + \frac{\sqrt{3}}{2} = \frac{2+\sqrt{3}}{2}$$

$$1-x = 1 - \frac{\sqrt{3}}{2} = \frac{2-\sqrt{3}}{2}$$

अगर $x = \frac{\sqrt{3}}{2}$ है तो $\frac{(\sqrt{1+x}+\sqrt{1-x})}{\sqrt{1+x}-\sqrt{1-x}} = ?$

a) $-\sqrt{3}$

b) -1

c) 1

d) $\sqrt{3}$

$\frac{2\sqrt{3}}{2}$

$$\frac{\sqrt{1+x}}{\sqrt{1-x}} = \frac{\sqrt{2+\sqrt{3}}}{\sqrt{2-\sqrt{3}}} = \frac{\sqrt{4+2\sqrt{3}}}{\sqrt{4-2\sqrt{3}}} = \frac{\sqrt{3}+1}{\sqrt{3}-1}$$

coaching center

324. If $x = \frac{a-b}{a+b}$, $y = \frac{b-c}{b+c}$, $z = \frac{c-a}{c+a}$ then $\frac{1+x}{1-x} \cdot \frac{1+y}{1-y} \cdot \frac{1+z}{1-z} = ?$

यदि $x = \frac{a-b}{a+b}$, $y = \frac{b-c}{b+c}$, $z = \frac{c-a}{c+a}$ है, तो $\left\{ \frac{1+x}{1-x} \cdot \frac{1+y}{1-y} \cdot \frac{1+z}{1-z} \right.$

का मान होगा :

a) 1

b) 2

c) 3

d) 0

$$\frac{1}{x} = \frac{a+b}{a-b}$$

$$\frac{1}{y} = \frac{b+c}{b-c}$$

$$\frac{1}{z} = \frac{c+a}{c-a}$$

$$\frac{a}{b} \times \frac{b}{c} \times \frac{c}{a} = 1$$

coaching center

325. If $\frac{x+1}{x-1} = \frac{a}{b}$ and $\frac{1-y}{1+y} = \frac{b}{a}$, then the value of $\frac{x-y}{1+xy}$ is

अगर $\frac{x+1}{x-1} = \frac{a}{b}$ और $\frac{1-y}{1+y} = \frac{b}{a}$ है तो $\frac{x-y}{1+xy}$ का मान:

$$\frac{x}{1} = \frac{a+b}{a-b}$$

a) $\frac{2ab}{a^2+b^2}$
c) $\frac{a^2-b^2}{2ab}$

b) $\frac{4ab}{a^2-b^2}$
d) $\frac{2ab}{a^2-b^2}$

$$\frac{1+y}{1-y} = \frac{a}{b}$$

$$\frac{1}{y} = \frac{a+b}{a-b}$$

$$y = \frac{a-b}{a+b}$$

$$\frac{4ab}{a^2-b^2}$$

$$= \frac{2 \cancel{y} ab}{(a^2-b^2) \cancel{2}}$$

1

coaching center

326. If $(2a + 3b)(2c - 3d) = (2a - 3b)(2c + 3d)$, then:

यदि $(2a + 3b)(2c - 3d) = (2a - 3b)(2c + 3d)$ है, तो:

a) $\frac{a}{b} = \frac{d}{c}$

~~b) $\frac{a}{b} = \frac{c}{d}$~~

c) $\frac{a}{d} = \frac{c}{b}$

d) $\frac{b}{a} = \frac{c}{b}$

$$\frac{2a+3b}{2a-3b} = \frac{2c+3d}{2c-3d}$$

$$\Rightarrow \frac{2a}{3b} = \frac{2c}{3d}$$

$$\frac{a}{b} - \frac{c}{d} = 0$$

$$ad = bc$$

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

coaching center

327. If $(a + b + 2c + 3d)(a - b - 2c + 3d) = (a - b + 2c - 3d)(a + b - 2c - 3d)$,
then $2bc$ is equal to

यदि $((a+b) + (2c+3d))(a-b-2c+3d) = (a-b+2c-3d)(a+b-2c-3d)$
है, तो $2bc$ बराबर है :

~~a) $3ad$~~

b) $\frac{3}{2}$

c) a^2b^2

d) $\frac{3a}{2d}$

$$\frac{(a+b) + (2c+3d)}{(a+b) - (2c+3d)} = \frac{(a-b) + (2c-3d)}{(a-b) - (2c-3d)}$$

$$\Rightarrow \frac{a+b}{2c+3d} = \frac{a-b}{2c-3d} \Rightarrow \frac{a+b}{a-b} = \frac{2c+3d}{2c-3d}$$

$$(a+b) - (2c+3d)$$

$$\rightarrow 3ad = 2bc$$

$$\frac{a}{b} = \frac{2c}{3d}$$

coaching center

$$\frac{a}{b} = \frac{\sqrt{.6912}}{\sqrt{.5292}} = \frac{\sqrt{\frac{6912}{10000}}}{\sqrt{\frac{5292}{10000}}} = \frac{\sqrt{6912}}{\sqrt{5292}}$$

$$\begin{array}{r} 64 \\ + 92 \\ \hline 1728 \\ \sqrt{6912} \\ \underline{6912} \\ 0 \\ + 323 \\ \hline 147 \\ 49 \end{array}$$

$$\frac{a}{b} = \frac{8}{7}$$

$$\Rightarrow \frac{a+b}{a-b} = \frac{15}{1}$$

328. The value of $\frac{\sqrt{0.6912} + \sqrt{0.5292}}{\sqrt{0.6912} - \sqrt{0.5292}}$ is

$a \leftarrow \frac{\sqrt{0.6912} + \sqrt{0.5292}}{\sqrt{0.6912} - \sqrt{0.5292}} \rightarrow b$ का मान है

a) 1.5

b) 0.9

~~c) 15~~

d) 9

$$\frac{a}{b} \rightleftarrows \frac{a+b}{a-b}$$

C & D both rcds;

329. $\frac{x^3+3x}{3x^2+1} = \frac{341}{91}$ then value of x ?

$\frac{x^3+3x}{3x^2+1} = \frac{341}{91}$, तो x का मान होगा -

a) 9

~~b) 11~~

c) 12

d) 13

$$\frac{x^3+3x+3x^2+1}{x^3+3x-3x^2-1} = \frac{\frac{216}{432}}{\frac{250}{125}}$$

$$\Rightarrow \frac{(x+1)^3}{(x-1)^3} = \frac{216}{125}$$

$$\Rightarrow \frac{x+1}{x-1} = \frac{6}{5}$$

$$\Rightarrow \frac{x}{1} = \frac{11}{1}$$

330. If $\frac{1+px}{1-px} \sqrt{\frac{1-qx}{1+qx}} = 1$, then what are the non-zero solutions of x ?

यदि $\frac{1+px}{1-px} \sqrt{\frac{1-qx}{1+qx}} = 1$ है, तो x के गैर-शून्य हल क्या हैं?

$$\begin{aligned} x &= \sqrt{16} \\ x &= 4 \end{aligned}$$

a) $\pm \frac{1}{p} \sqrt{\frac{2p-q}{q}}, 2p \neq q$

b) $\pm \frac{1}{pq} \sqrt{p-q}, p \neq q$

c) $\pm \frac{p}{q} \sqrt{p-q}, p \neq q$

d) $\pm \frac{q}{p} \sqrt{2p-q}, 2p \neq q$

$$\frac{(1+px)^2}{(1-px)^2} = \sqrt{\frac{1+qx}{1-qx}}$$

$$\Rightarrow \frac{1+p^2x^2}{2p \cdot px} = \frac{1}{qx}$$

$$\rightarrow 1+p^2x^2 = \frac{2p}{q}$$

$$\Rightarrow p^2x^2 = \frac{2p}{q} - 1 = \frac{2p-q}{q}$$

$$\Rightarrow px = \pm \sqrt{\frac{2p-q}{q}}$$

331. If $a = \frac{(\sqrt{x+2} + \sqrt{x-2})}{(\sqrt{x+2} - \sqrt{x-2})}$, then the value of $a^2 - ax$ is

अगर $a = \frac{(\sqrt{x+2} + \sqrt{x-2})}{(\sqrt{x+2} - \sqrt{x-2})}$ है तो $a^2 - ax$ का मान:

a) 2

b) 1

c) 0

~~d) -1~~

$$\frac{(a+1)^2}{(a-1)^2} = \frac{\sqrt{x+2}}{\sqrt{x-2}}$$

$$\Rightarrow \frac{2(a^2+1)}{4a-1} = \frac{x}{2}$$

$$\Rightarrow a^2+1 = ax$$

$$\Rightarrow a^2 - ax = -1$$

$$x = \frac{2ab}{a+b}$$

332. If $x = \frac{4ab}{a+b}$ $a \neq b$, then the value of $\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$ is

अगर $x = \frac{4ab}{a+b}$ $a \neq b$, है तो $\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$:

a) a

b) b

c) 2ab

d) 2

$$\frac{x}{2a} = \frac{2b}{a+b}$$

$$\frac{x}{2b} = \frac{2a}{a+b}$$

$$\frac{3b+a}{b-a} + \frac{3a+b}{a-b}$$

$$= \frac{3b+a}{b-a} + \frac{-3a-b}{b-a}$$

$$= \frac{2b-2a}{b-a} = \frac{2(b-a)}{(b-a)}$$

$$x = \frac{3pq}{p+q}$$

333. If $x = \frac{6pq}{p+q}$, then $\frac{x+3p}{x-3p} + \frac{x+3q}{x-3q} = ?$

यदि $x = \frac{6pq}{p+q}$ है, तो $\frac{x+3p}{x-3p} + \frac{x+3q}{x-3q}$ ज्ञात करो।

a) 1

~~b) 2~~

c) 3

d) 4

$$\frac{x}{3p} = \frac{2q}{p+q}$$

$$\frac{x}{3q} = \frac{2p}{p+q}$$

$$\frac{3q+p}{q-p} + \frac{3p+q}{p-q}$$

$$= \frac{-3q-p+3p+q}{p-q}$$

$$p-q$$

$$= \frac{2p-2q}{p-q} = 2$$

334. If $x = \frac{4\sqrt{6}}{\sqrt{2}+\sqrt{3}}$, then $\frac{x+2\sqrt{2}}{x-2\sqrt{2}} + \frac{x+2\sqrt{3}}{x-2\sqrt{3}} = ?$

यदि $x = \frac{4\sqrt{6}}{\sqrt{2}+\sqrt{3}}$ है, तो $\frac{x+2\sqrt{2}}{x-2\sqrt{2}} + \frac{x+2\sqrt{3}}{x-2\sqrt{3}}$ ज्ञात करो ।

a) 1

~~b) 2~~

c) 3

d) 4

$$x = \frac{2 \cdot 2\sqrt{6}}{\sqrt{2} + \sqrt{3}}$$

$$\frac{2\sqrt{6}}{\sqrt{2}}$$

$$\frac{2\sqrt{6}\sqrt{2}}{\sqrt{3}}$$

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

$$\begin{aligned} \sqrt{6} &= \sqrt{3 \times 2} \\ &= \sqrt{3} \times \sqrt{2} \end{aligned}$$

coaching center

335. If $x = \frac{4\sqrt{15}}{\sqrt{5}+\sqrt{3}}$, then the value of $\frac{x+\sqrt{20}}{x-\sqrt{20}} + \frac{x+\sqrt{12}}{x-\sqrt{12}}$ is

अगर $x = \frac{4\sqrt{15}}{\sqrt{5}+\sqrt{3}}$ है तो $\frac{x+\sqrt{20}}{x-\sqrt{20}} + \frac{x+\sqrt{12}}{x-\sqrt{12}}$ का मान:

a) 1

~~b) 2~~

c) $\sqrt{3}$

d) $\sqrt{5}$

$$x = 2 \frac{2\sqrt{15}}{\sqrt{5}+\sqrt{3}}$$

$$\sqrt{12} = \sqrt{4 \times 3} = 2\sqrt{3}$$

coaching center

$(b-a)^2 = (a-b)^2 = a^2 + b^2 - 2ab$ 336. If $x = \frac{2pq}{1+q^2}$ then $\frac{\sqrt{p+x} + \sqrt{p-x}}{\sqrt{p+x} - \sqrt{p-x}} = ?$

यदि $x = \frac{2pq}{1+q^2}$ है, तो $\frac{\sqrt{p+x} + \sqrt{p-x}}{\sqrt{p+x} - \sqrt{p-x}}$ बराबर है :

- a) q
- b) $p - q$
- c) $\frac{1}{q}$
- ~~d) both q and $\frac{1}{q}$~~

$$\frac{1+q^2}{2q} = \frac{p}{x}$$

$$\Rightarrow \frac{(1+q)^2}{(1-q)^2} = \frac{\sqrt{p+x}}{\sqrt{p-x}}$$

$$\Rightarrow \frac{21}{2q} =$$

$$\frac{1+q^2+2q}{1+q^2-2q} = \frac{(1+q)^2}{(1-q)^2}$$

$$\frac{(q+1)^2}{(q-1)^2}$$

coaching center