

$$1! + 3! + 5! + \dots + 25!$$

$$1! = 1$$

$$3! = 4$$

$$1 + 4 = 5$$

$$18, 20$$

$$A \rightarrow B \rightarrow C$$

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$$14! + 12! + 10! + \dots + 24!$$

$$1! = 1$$

$$3! = 4$$

$$1 + 4 = 5$$

$$4 \times 5 = 20 \rightarrow 20 = 2$$

$$9$$

$$1, 10$$

$$\sqrt{(1+\sqrt{2})^{-1}} \sqrt{(1+\sqrt{2})^2} = \sqrt{\left(\frac{1}{1+\sqrt{2}}\right)(1+\sqrt{2})^2} = \sqrt{\frac{(1+\sqrt{2})^2}{1+\sqrt{2}}} = \sqrt{\frac{1+2\sqrt{2}+2}{1+\sqrt{2}}} = \sqrt{\frac{3+2\sqrt{2}}{1+\sqrt{2}}} = \sqrt{\frac{(1+\sqrt{2})^2}{1+\sqrt{2}}} = 1+\sqrt{2}$$

$$\frac{\sqrt{2}+\sqrt{10}}{\sqrt{10}+2} \times \frac{\sqrt{10}-2}{\sqrt{10}-2} = \frac{10\sqrt{2}-2\sqrt{10}+10-2\sqrt{2}}{10-4} = \frac{8\sqrt{2}-2\sqrt{10}+8}{6} = \frac{4\sqrt{2}-\sqrt{10}+4}{3}$$

$$\frac{12\sqrt{2}+12\sqrt{10}}{10-4} \times \frac{10+2\sqrt{2}}{10+2\sqrt{2}} = \frac{120\sqrt{2}+120\sqrt{10}+120+24\sqrt{2}}{10-4} = \frac{144\sqrt{2}+120\sqrt{10}+120}{6} = 24\sqrt{2}+20\sqrt{10}+20$$

$$\frac{-2}{\sqrt{2}-1} = \frac{-2}{\sqrt{2}-1} \times \frac{\sqrt{2}+1}{\sqrt{2}+1} = \frac{-2\sqrt{2}-2}{2-1} = -2\sqrt{2}-2$$

$$\sqrt{2}+\sqrt{2}-\sqrt{2}-1 = \sqrt{2}-1$$

$$\frac{12\sqrt{2}-1}{1+\sqrt{2}} \times \frac{1-\sqrt{2}}{1-\sqrt{2}} = \frac{12\sqrt{2}-12+9+\sqrt{2}}{1-2} = \frac{13\sqrt{2}-3}{-1} = 3-13\sqrt{2}$$

$$\frac{1}{1-\sqrt{2}} \times \frac{1+\sqrt{2}}{1+\sqrt{2}} = \frac{1+\sqrt{2}}{1-2} = -1-\sqrt{2}$$

$$\sqrt{2}-1+1+\sqrt{2} = 2\sqrt{2}$$

$$\frac{\sqrt{1+\sqrt{2}}+\sqrt{\sqrt{2}-1}}{\sqrt{\sqrt{2}-1}} \times \frac{\sqrt{\sqrt{2}+1}}{\sqrt{\sqrt{2}+1}} = \frac{(\sqrt{1+\sqrt{2}}+\sqrt{\sqrt{2}-1})(\sqrt{\sqrt{2}+1})}{\sqrt{(\sqrt{2}-1)(\sqrt{2}+1)}} = \frac{(\sqrt{1+\sqrt{2}}+\sqrt{\sqrt{2}-1})(\sqrt{\sqrt{2}+1})}{\sqrt{2-1}} = \sqrt{1+\sqrt{2}}+\sqrt{\sqrt{2}-1}$$

$$12\sqrt{2} \times 12\sqrt{2} \times 12\sqrt{2} = 12\sqrt{2} \times 12\sqrt{2} \times 12\sqrt{2} = 12\sqrt{2} \times 144 = 1728\sqrt{2}$$

$$\frac{12^2(1+12+12^2+12^3+12^4+12^5)}{12^2\left(\frac{1}{12}+\frac{1}{12}+1+12+12^2+12^3\right)} = \frac{144(1+12+144+1728+20736+248832)}{144\left(\frac{1}{12}+\frac{1}{12}+1+12+144+1728\right)} = \frac{144(262144)}{144(1843)} = \frac{262144}{1843}$$

$$\left(\frac{12}{12}\right)^2 \times \frac{144}{12} = 12$$

$$\left(\frac{12}{12}\right)^2 = \frac{12}{12} \times \frac{144}{12} \times \frac{1}{12} = \frac{144}{12} = 12$$

$$\left(\frac{12}{12}\right)^2 = \frac{9}{12} \quad \lambda = 2$$

$$((a-b)^2(a+b)^2)^2 = ((a-b)(a+b))^4 = ((a^2-b^2))^2 = ((\sqrt{4}-2-\sqrt{4}+2))^2 = ((\sqrt{4}-2)+(\sqrt{4}+2)-2\sqrt{(\sqrt{4}-2)(\sqrt{4}+2)})^2 = (2\sqrt{4}-2\sqrt{2})^2 = (2\sqrt{4}+1-14\sqrt{2})^2 = 32-14\sqrt{12}$$

$$32-14\sqrt{12} = t(2-\sqrt{3})$$

$$14(2-\sqrt{3})$$

$$t = 14$$

