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356 $\frac{1}{2}\sin\frac{\pi}{6}+\frac{\sqrt{3}}{2}\cos\frac{\pi}{6}+\sqrt{2}\csc\frac{\pi}{4}+3\cot\frac{\pi}{3}\tan\frac{\pi}{6}+\csc\frac{\pi}{6}$ =

$$=\frac{1}{2}\cdot\frac{1}{2}+\frac{\sqrt{3}}{2}\cdot\frac{\sqrt{3}}{2}+\sqrt{2}\,\frac{1}{\sin\frac{\pi}{4}}+\cancel{3}\cdot\frac{\sqrt{3}}{\cancel{3}}\cdot\frac{\sqrt{3}}{3}+\frac{1}{\sin\frac{\pi}{6}}=$$

$$\boxed{\cot\frac{\pi}{3}=\frac{1}{\tan\frac{\pi}{3}}=\frac{1}{\sqrt{3}}}$$

$$=\frac{1}{4}+\frac{3}{4}+\cancel{\sqrt{2}}\cdot\frac{2}{\cancel{\sqrt{2}}}+1+2=$$

$$=1+2+1+2=6$$

363 $\dfrac{a^2\tan 45°+ab\csc 30°+b^2\sec 0°}{a-b\sin 270°}$ =

$$=\frac{a^2+ab\cdot 2+b^2}{a-b(-1)}=\frac{a^2+2ab+b^2}{a+b}=\frac{(a+b)^{\cancel{2}}}{\cancel{a+b}}=$$

$$=a+b$$

382 $\csc(2\pi-\alpha)+\dfrac{\cos^2(2\pi-\alpha)+\sin^2\alpha}{\sin(2\pi-\alpha)} =$

$$= \frac{1}{\sin(2\pi-\alpha)} + \frac{\cos^2(-\alpha)+\sin^2\alpha}{\sin(-\alpha)} =$$

$$= \frac{1}{\sin(-\alpha)} + \frac{\cos^2\alpha+\sin^2\alpha}{-\sin\alpha} =$$

$$= \frac{1}{-\sin\alpha} + \frac{1}{-\sin\alpha} = -\frac{2}{\sin\alpha}$$

438 $\dfrac{1-\cos(8\pi-\alpha)}{\sin(-4\pi-\alpha)\cos(6\pi-\alpha)}+\tan(\alpha-3\pi)+\dfrac{1-\cos(10\pi-\alpha)}{\tan(7\pi+\alpha)} =$

$$= \frac{1-\cos(-\alpha)}{\sin(-\alpha)\cos(-\alpha)} + \tan\alpha + \frac{1-\cos(-\alpha)}{\tan\alpha} =$$

$$= \frac{1-\cos\alpha}{-\sin\alpha\cos\alpha} + \tan\alpha + \frac{1-\cos\alpha}{\tan\alpha} =$$

$$= \frac{\cos\alpha-1}{\sin\alpha\cos\alpha} + \frac{\sin\alpha}{\cos\alpha} + \frac{\cos\alpha(1-\cos\alpha)}{\sin\alpha} =$$

$$= \frac{\cos\alpha\cancel{-1}+\cancel{\sin^2\alpha}+\cancel{\cos^2\alpha}-\cos^3\alpha}{\sin\alpha\cos\alpha} =$$

$$= \frac{\cos\alpha - \cos^3\alpha}{\sin\alpha\cos\alpha} = \frac{\cancel{\cos\alpha}(1-\cos^2\alpha)}{\sin\alpha\cancel{\cos\alpha}} =$$

$$= \frac{\sin^{\cancel{2}}\alpha}{\cancel{\sin\alpha}} = \sin\alpha$$

439 $\dfrac{\sin(-\alpha) + \cos(180° - \alpha) - \tan(180° + \alpha)}{\tan(180° - \alpha) - \cos(90° - \alpha) - \cos(-\alpha)} =$

$$= \frac{-\sin\alpha - \cos\alpha - \tan\alpha}{-\tan\alpha - \sin\alpha - \cos\alpha} = 1$$

450 $\cos(\pi + \alpha)$, $\tan\left(\frac{\pi}{2} + \alpha\right)$, $\sin\left(\frac{3}{2}\pi + \alpha\right)$, $\cos(-\alpha)$ $\quad \sin\left(\frac{\pi}{2} - \alpha\right) = -\frac{7}{25}$, con $\pi < \alpha < \frac{3}{2}\pi$

$\left[\frac{7}{25}; -\frac{7}{24}; \frac{7}{25}; -\frac{7}{25}\right]$

$$\cos\alpha = -\frac{7}{25}$$

1) $\cos(\pi + \alpha) = ?$

$$\cos(\pi + \alpha) = -\cos\alpha = \frac{7}{25}$$

2) $\tan\left(\frac{\pi}{2} + \alpha\right) = -\cot\alpha = -\frac{\cos\alpha}{\sin\alpha} = (*)$

$$\sin\alpha = -\sqrt{1 - \cos^2\alpha} = -\sqrt{1 - \frac{49}{625}} = -\sqrt{\frac{625-49}{625}} =$$

$$= -\sqrt{\frac{576}{625}} = -\frac{24}{25}$$

$$(*) = -\frac{-\frac{7}{25}}{-\frac{24}{25}} = -\frac{7}{24}$$

3) $\sin\left(\frac{3}{2}\pi+\alpha\right) = \sin\left(\pi+\underbrace{\frac{\pi}{2}+\alpha}_{\beta}\right) = -\sin\left(\underbrace{\frac{\pi}{2}+\alpha}_{\beta}\right) =$

$= -\cos\alpha = \frac{7}{25}$

4) $\cos(-\alpha) = \cos\alpha = -\frac{7}{25}$

484 $2\cos 225° + \sqrt{3}\sin 240° - \sqrt{2}\sin 315° - 2\sin 150° + \frac{3}{2}\tan 225° =$

$= 2\cos(180°+45°) + \sqrt{3}\sin(180°+60°) - \sqrt{2}\sin(360°-45°) -$

$- 2\sin(180°-30°) + \frac{3}{2}\tan(180°+45°) =$

$= 2[-\cos 45°] + \sqrt{3}[-\sin 60°] - \sqrt{2}\sin(-45°) -$

$- 2\sin 30° + \frac{3}{2}\tan 45° =$

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