py 492

* 12

$$
\begin{aligned}
& \log _{5}(x-1)+\log _{5}(x-2)-\log _{5}(x+6) 0 \\
& \log _{5}\left(\frac{(x-1)(x-2)}{(x+6)}\right)=0 \\
& \log _{5}\left(\frac{(x-1)(x-2)}{(x+6)}\right)_{0}=0 \\
& 5=\frac{(x-1)(x-2)}{x+6} \\
& 1=\frac{(x-1)(x-2)}{(x+6)} \\
&(x+6)=(x-1)(x-2) \\
& x+6=x^{2}-3 x+2 \\
& 0=x^{2}-4 x-4 \\
& x=\frac{+4 \pm \sqrt{16-4(-4)}}{2} \\
&=\frac{+4 \pm \sqrt{32}}{2}
\end{aligned}
$$

$$
\begin{aligned}
& 485 \text { +1 } k \\
& 9^{x+1}=27^{2 x-3} \\
& 7^{2}+1=\left(3^{3}\right)^{2 x-3} \\
&\left(3^{2 x+2}\right.=3 \\
& 3 x \\
& 2 x+2=6 x-9 \\
& 1=4 x \\
& \frac{1}{4}=3
\end{aligned}
$$

492
\#15\#16

$$
\begin{aligned}
\log \left(\frac{x+y}{5}\right) & =\frac{1}{2}(\log x+\log y) \\
\log \left(\frac{x+y}{5}\right) & =\frac{1}{2} \log x y \\
\log \left(\frac{x+5}{5}\right) & =\log (x y)^{1 / 2} \\
\frac{x+y}{5} & =(x y)^{2 / 2} \\
\frac{(x+y)^{2}}{5^{2}} & =x y \\
\frac{x^{2}+2 x y+y^{2}}{25} & =x y \\
x^{2}+2 x y+y^{2} & =25 x y \\
x^{2}+y^{2} & =23 x y
\end{aligned}
$$

414

$$
\begin{aligned}
\frac{\log \left(35-x^{3}\right)}{\log (5-x)} & =3 \\
\log \left(35-x^{3}\right) & =3 \log (5-x) \\
\left(35-x^{3}\right) & =(5-x)^{3}
\end{aligned}
$$

7. 

$$
\begin{aligned}
& 2 \cos ^{3} x-\cos x=0 \\
& \text { let } y=\cos x \\
& 2 y^{3}-y=0 \\
& y\left(2 y^{2}-1\right)=0 \\
& \begin{array}{lll}
y=u & \text { or } & 2 y^{2}-1=u \\
s y^{2} & =1
\end{array} \\
& \cos x=0 \\
& =\frac{\pi}{2}, 3 \pi / 2 \pi-\pi / 2,-3 \frac{\pi}{2} \\
& \begin{aligned}
2 y^{2} & =1 \\
y^{2} & =\frac{1}{2} \\
y & =\frac{1}{2}
\end{aligned}
\end{aligned}
$$

$$
\begin{aligned}
& \theta=\pi / 4 / \pi / 4
\end{aligned}
$$

$$
\begin{aligned}
& \text { 布. } \quad \sin (\pi / 12)=\sin \left(\frac{\sqrt{4 \pi / 3}}{12}-\frac{3 \pi}{14}\right) \\
& =\sin \left(\frac{\pi}{3} \operatorname{kos}\left(\frac{\pi}{4}\right)-c \frac{\pi \pi}{3} \sqrt{3} \frac{\pi}{1}\right. \\
& =\frac{\sqrt{3}}{2}\left(\frac{1}{\sqrt{2}}\right)-\frac{1}{2}\left(\frac{1}{\sqrt{2}}\right) \\
& =\frac{\sqrt{3}}{2 \sqrt{2}}-\frac{1}{2 \sqrt{2}} \\
& =\frac{\sqrt{3}-T \sqrt{2}}{2 \sqrt{2}} \sqrt{2} \\
& =\frac{\sqrt{6}-\sqrt{2}}{4}
\end{aligned}
$$

$$
\begin{aligned}
\tan \left(\frac{\pi}{8}\right) & =\tan (2 \times \pi 16) \\
& =\tan (2 \times \theta) \\
& =\frac{2 \tan \theta}{1-\tan ^{2} \theta} \\
& =\frac{2 \tan ^{2114}}{1-(\tan 314)^{2}} \\
& =\frac{2(0.19)}{1-(0.19)^{2}} \\
& =-2
\end{aligned}
$$

$$
\begin{aligned}
& 12 \\
& 2 \cot ^{2}(2 x)+5 \csc (2 x)-1=0 \\
& \log _{\partial^{2}=\theta}=\frac{c^{2}}{s^{2}}+\frac{c^{2}}{s^{2}}=\frac{1}{s^{2}} \quad \operatorname{lec}_{c \rightarrow t} c^{2} \theta \\
& 1+\cot ^{2} \theta=\csc ^{2} \theta \\
& \cot ^{2} t=\csc ^{2} t-1 \\
& 2\left(\csc ^{2} \theta-1\right)+5 \cos \theta-1=u \\
& 2 y^{2}-2+5 y-1=0 \\
& 2 y^{2}+5 y-3=0 \\
& 2 y^{2}+x y-y-3=0 \\
& \begin{aligned}
2 y(y+3)-1(y+3) & =0 \\
(2 y-1)(y+3) & =0
\end{aligned} \\
& \theta y-1=0 \\
& y=\frac{1}{2} \\
& \begin{array}{r}
y+3=0 \\
y=-3
\end{array} \\
& y=-3 \\
& \operatorname{cs} A=\frac{1}{2} \\
& C A^{\prime}=-3 \\
& \sin \theta=\frac{1}{-3} \\
& \frac{0}{h} \quad \theta_{k}=\sin \left(\frac{1}{3}\right) \\
& \rightarrow=0.07 \\
& t=3^{111+0.07} \\
& { }^{\circ} \theta=6.28-0.07
\end{aligned}
$$

$$
\begin{aligned}
& \begin{array}{ll}
\text { He } \\
\text { ar } \\
\text { an }
\end{array} \log _{\frac{1}{3}} 27=x \quad \begin{array}{l}
\text { to } \\
\log _{\frac{1}{2}} x=-2
\end{array} \\
& \frac{1}{3}^{x}=27\left(\frac{1}{2}\right)^{-2}=x \\
& \begin{array}{c}
3 \\
\left(3^{-1}\right)^{x}=27\left(2^{-1}\right)^{2}=x
\end{array} \\
& \begin{array}{lll}
-x=3 \\
x=-3 & 5^{-x} & 5^{x}=2_{3}^{7}
\end{array} \quad 2 \begin{array}{ll}
2 & =x
\end{array} \\
& x=-3 \quad 5^{x}=3^{3}
\end{aligned}
$$

