## 29.10 1)

$$5^{2x}=2^{1-x}\Leftrightarrow \log 5^{2x}=\log 2^{1-x}\Leftrightarrow 2x\log 5=(1-x)\log 2\Leftrightarrow 2x\log 5=\log 2-x\log 2\Leftrightarrow$$

$$\Leftrightarrow 2x\log 5+x\log 2=\log 2\Leftrightarrow x(2\log 5+\log 2)=\log 2\Leftrightarrow x=\frac{\log 2}{2\log 5+\log 2}$$

## 29.10 2)

$$7^{2x-1}=2 \underset{2>0}{\overset{7^{2x-1}>0}{\Rightarrow}} \log 7^{2x-1}=\log 2 \Rightarrow (2x-1)\log 7=\log 2 \Rightarrow$$

$$\Rightarrow 2x-1=\frac{\log 2}{\log 7} \Rightarrow 2x=\frac{\log 2}{\log 7}+1 \Rightarrow 2x=\frac{\log 2+\log 7}{\log 7} \Rightarrow$$

$$\Rightarrow 2x=\frac{\log 14}{\log 7} \Rightarrow x=\frac{\log 14}{2\log 7}$$

## 29.10 3)

$$3^{x+1}=5 \underset{5>0}{\overset{3^{x+1}>0}{\Rightarrow}} \log 3^{x+1}=\log 5 \Rightarrow (x+1)\log 3=\log 5 \Rightarrow$$

$$\Rightarrow x\log 3=\log 5-\log 3 \Rightarrow x=\frac{\log 5-\log 3}{\log 3}$$

## 29.10 4)

$$2^{x}=3^{x} \underset{3^{x}>0}{\overset{2^{x}>0}{\Rightarrow}} \log 2^{x}=\log 3^{x} \Rightarrow x\log 2=x\log 3 \Rightarrow$$

$$\Rightarrow x(\log 2-\log 3)=0 \Rightarrow x=0$$

## 29.10 5)

$$5^{x}=3^{x-1} \underset{3^{x-1}>0}{\overset{5^{x}>0}{\Rightarrow}} \log 5^{x}=\log 3^{x-1} \Rightarrow x\log 5=(x-1)\log 3 \Rightarrow$$

$$\Rightarrow x\log 5=x\log 3-\log 3 \Rightarrow x(\log 5-\log 3)=-\log 3 \Rightarrow$$

$$\Rightarrow x=\frac{\log 3}{\log 3-\log 5}$$

## 29.10 6)

$$4^{x-3}=3^{x+2} \underset{3^{x+2}>0}{\overset{4^{x-3}>0}{\Rightarrow}} \log 4^{x-3}=\log 3^{x+2} \Rightarrow (x-3)\log 4=(x+2)\log 3 \Rightarrow$$

$$\Rightarrow x\log 4-3\log 4=x\log 3+2\log 3 \Rightarrow x(\log 4-\log 3)=2\log 3+3\log 4 \Rightarrow$$

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

## 29.10 7)

$$2^{2x+1}=5^{x-2} \underset{5^{x-2}>0}{\overset{2^{2x+1}>0}{\Rightarrow}} \log 2^{2x+1}=\log 5^{x-2} \Rightarrow (2x-1)\log 2=(x-2)\log 5 \Rightarrow$$

$\Rightarrow\ 2x\log 2-\log 2=x\log 5-2\log 5\ \Rightarrow\ x\left(2\log 2-\log 5\right)=\log 2-2\log 5\ \Rightarrow$

$$x=\frac{2\log 5-\log 2}{\log 5-2\log 2}$$