4m 2e $3\ln 2 - 2$

$= \ln 2^3 - \ln e^2$

$= \ln 8 - \ln e^2$

$= \ln\left(\frac{8}{e^2}\right)$

3e $\frac{1}{2}\log 36 - \log 15 + 2\log 5$

$= \log 6 - (\log 15 + \log 25$.

$= \log\left(\frac{6}{15}\right) + \log 25$

$= \log\left(\frac{\cancel{6}^2}{\cancel{15}_5} \cdot 25\right) = \log\left(\frac{50}{5}\right)$

$= \log(10)$

$\log_{10} 10 = y$

$10^y = 10^1$

$y = 1$

4N 2. $\log\left(\frac{P^2}{QR^2}\right)^3 = 3\log\left(\frac{P^2}{QR^2}\right)$

$x = \log P$
$y = \log Q$
$z = \log R$

$= 3\left[\log(P^2) - \log(QR^2)\right]$

$= 3\left[2\log P - (\log Q + 2\log R)\right]$

$= 3\left[2x - (y + 2z)\right]$

$= 6x - 3(y + 2z)$

$= 6x - 3y - 6z$

4. $y = \log_3 \frac{27^a}{81}$ in form $y = pa + q$
$p, q \in \mathbb{Z}$

$\log_3(27) = p$
$p = 27$
$3^p = 3^3$
$p = 3$

$= \log_3(27^a) - \log_3(81)$

$= a\boxed{\log_3(27)} - \log_3(81)$

$3^x = 27$

$= \underline{3}a - \underline{4}$

$\log_3(81) = q$
$3^q = 81$
$q = 4$

6. $e^{x\ln 2} = 2^x$ show it's true

$e^{\ln 2^x}$

2^x

$\sin^{-1}(\sin(x)) = \sin^{-1}\left(\frac{1}{2}\right)$

$x = 60^\circ$

$e^{\ln(x)} = e^4$

$x = \boxed{e^4}$

Questions:	Notes:
	# CHANGE OF BASE
	Recall: if we have $\log(x) = \#$
	can apply $10^{\log(x)} = 10^{\#}$
	$x = 10^{\#}$
	$\boxed{\bullet \quad \log_b a = \dfrac{\log_c a}{\log_c b}}$
	FOR USE IN CALCULATOR
	Ex) EVALUATE $\log_4 9$ to 3sf.
	$\log_4 9 = \dfrac{\log_{10} 9}{\log_{10} 4} \approx 1.58$
	Ex) $a = \log_x 3$ and $b = \log_x 6$
	find $\log_3 6$ in terms of a and b
	$\log_3 6 = \dfrac{\log 6}{\log 3} = \dfrac{b}{a}$
	HW 40 p.126 1) 2, 3, 5b