M22, Review, wtr 08 pg 3
Ex 2

(4) $\varphi(2^n \cdot 3^m \cdot 11^k) = \underbrace{(2-1)\cdot 2^{n-1}}_{1\cdot 2^{n-1}} \cdot \underbrace{(3-1)3^{m-1}}_{2\cdot 3^{m-1}} \cdot \underbrace{(11-1)\cdot 11^{k-1}}_{2\cdot 5\cdot 11^k} = 2^{n+1} \cdot 3^{m-1} \cdot 5 \cdot 11^{k-1}$

$720 = \varphi(J) = 2^4 \cdot 3^2 \cdot 5^1$, so $n=3$, $m=3$, $k=1$
and $\boxed{J = 2^3 \cdot 3^3 \cdot 11^1 = 2376}$

(5)

p	q	r	(q ∧	(r → p))	∨	r
1	1	1	1	1	1	1
1	1	0	1	1	1	1	0
1	0	1	0	0	1	1	1
1	0	0	0	0	1	0	0
0	1	1	1	0	0	1	1
0	1	0	1	1	1	1	0
0	0	1	0	0	0	1	1
0	0	0	0	0	1	0	0

(6) $\sim(\forall k)(\exists n)(\forall m)\ kn \le m = (\exists k)(\forall n)(\exists m)\ kn \not\le m$
$= (\exists k)(\forall n)(\exists m)\ kn > m$

$(\forall k)(\exists n)(\forall m)\ kn \le m$ says that for any k we can find an n-value such that
$kn \le m$ works for all m.
But suppose $k=2$; the smallest n we can find in this universe is $n=1$, but
$kn = 2\cdot 1 \not\le m$ for all m, for instance in the case $m=3$
The negation says that we can find a value k such that for all n there is an m with $kn > m$
Take $k=2$; then for all n, $2n > m$ for the m-value $m=1$, so this statement is true.